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*A step beyond the roar of trade,  
The great land lies in tranquillity and peace.*

North Stukely, Que.  
by George Hunter



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# CANADA

## 1956

The OFFICIAL HANDBOOK  
of PRESENT CONDITIONS  
and RECENT PROGRESS

Prepared in the  
CANADA YEAR BOOK SECTION  
INFORMATION SERVICES DIVISION  
DOMINION BUREAU OF STATISTICS

Ottawa

Published under the authority of

THE RIGHT HONOURABLE C.D. HOWE

Minister of Trade and Commerce

Price 75 cents

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1786-57  
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**636999**

12.6.56

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1956



## Foreword

THE Canada Handbook was instituted in 1930 to give Canadians and the people of other lands a concise, balanced, factual account of the annual progress of the Canadian nation and economy. In text, in table, in map and illustration, *Canada 1956* seeks to portray the present conditions of the Canadian people, their country, government, cultural development and welfare. It endeavours to present the recent progress of the many-sided Canadian economy of today, the operation and achievements of which are based upon the rich and varied natural resources of Canada, the skill and enterprise of its business and industrial community, the far-flung network of transport and communication facilities, and the character of its people.

For its information *Canada 1956* draws heavily on the several divisions of the Dominion Bureau of Statistics and the various departments of the Government of Canada. The illustrations are secured from a wide range of governmental, commercial, press and private sources.

*Canada 1956* is edited and produced in the Canada Year Book Section of the Information Services Division by Miss Margaret Pink, Assistant Editor of the Handbook, Mr. John F. McVea, Chief of the Section, and Dr. C. C. Lingard, Editor and Director of the Division.

*H. Marshall*

*Dominion Statistician*

Dominion Bureau of Statistics,  
Ottawa, March 31, 1956





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# Acknowledgments

Grateful acknowledgment is made to all those who supplied information for this publication. Special thanks are extended to Mr. Walter B. Herbert of The Canada Foundation for the preparation of the material on "Cultural Relationships". The art work for the map preceding page one and for the conspectus pages was executed by Mr. Gordon Fairbairn of the Fairbairn Studio Limited, Ottawa, and the art work for the cover by Reliance Engravers Limited, Toronto.

Acknowledgment is also made to the following sources for assistance in supplying photographic material:—

Alberta Government	<i>Farmer's Advocate</i>
Aluminum Company of Canada	Federal Newsphotos
Atomic Energy of Canada Limited	Harry Filion, Vancouver, B.C.
Aylmer Products	Ford Motor Company of Canada
Ken Bell, Toronto, Ont.	Goertz Studios
Bell Telephone Company of Canada	Mel Grand, Ottawa, Ont.
Wallace Berry, Kingston, Ont.	<i>Halifax Chronicle-Herald</i>
British Columbia Department of Education	Howard Smith Paper Mills, Limited
British Columbia Government Travel Bureau	Hydro-Electric Power Commission of Ontario
Canada Wide Feature Service Limited	George Hunter, Toronto, Ont.
Canadian Authors Association	Imperial Oil Limited
Canadian Bank of Commerce	Yousuf Karsh, Ottawa, Ont.
Canadian Broadcasting Corporation	Malak, Ottawa, Ont.
Canadian Industries Limited	McKague, Toronto, Ont.
Canadian National Railway System	Gilbert A. Milne & Co. Limited
Canadian Pacific Railway Company	<i>Montreal Gazette</i>
Canadian Westinghouse Company Limited	National Film Board
Capital Press	National Gallery
Jack Cash, Vancouver, B.C.	National Harbours Board
D. Clemson, Armstrong, B.C.	National Paper Box Company Limited
Charles E. Craig, Vancouver, B.C.	National Research Council
Bill Dennett, Vancouver, B.C.	New Brunswick Electric Power Commission
Department of External Affairs	D. Noden, Edmonton, Alta.
Department of Fisheries	Nova Scotia Bureau of Information
Department of Mines and Technical Surveys	Ontario Department of Lands and Forests
Department of National Defence	Ontario Department of Travel and Publicity
Department of National Health and Welfare	Ontario Hospital Association
Department of Northern Affairs and National Resources	Photographic Survey Corporation Limited
Department of Trade and Commerce	Quebec Hydro-Electric Commission
Department of Veterans Affairs	Royal Bank of Canada
Dominion-Wide Photographs	St. Lawrence Seaway Authority

## Acknowledgments—*Concluded*

Saskatchewan Department of Agriculture  
Saskatchewan Government Photographic  
Service  
Saskatchewan Power Corporation  
*School Progress*  
Peter Smith Company  
Toronto-Dominion Bank

Trans-Canada Air Lines  
Union Carbide Canada Limited  
University of British Columbia Players' Club  
Alumni  
*Vancouver Sun*  
*Western Business and Industry*  
Women's College Hospital

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Gordon Fairbairn

Canada stands astride the crossroads of the world—the dead centre of the new heartland of air geography.



# The Country

## • Canada's Strategic Position Among the Nations

CANADA today occupies a highly strategic position among the nations of the world as a result of its geographical location in the western and northern hemispheres, its heritage of the two great formative traditions of Western Europe which have been adapted to a North American continental environment, its vast storehouse of natural resources, the unsurpassed intensity of its post-war industrial growth, its role in Commonwealth, regional and world organizations, and the distinctive national characteristics and traditions which the Canadian people have developed during their struggle of nation-building in defiance of geographical and economic forces.

The second largest country in the world, with an area of 3,845,774 sq. miles, Canada comprises the northern half of North America (with the exception of Alaska and Greenland). Shaped like a distorted parallelogram, Canada's four corner salients emphasize its strategic position as the nearest neighbour of the paramount powers of the modern world. On the east lies the Province of Newfoundland as the sentinel of the St. Lawrence gateway, commanding the shortest oceanic routes to the United Kingdom and France — homelands of Canada's dual cultural traditions. On the south, the salient of peninsular Ontario thrusts deep into the industrial heart of the United States with which Canada shares close and extensive contacts across four thousand miles of common frontier. On the west, British Columbia, flanked by Alaska, faces the populous Far Eastern nations of Japan and China across the North Pacific. On the north, the Canadian Arctic Archipelago guards the approaches to this continent from the Eurasian land mass and makes Canada in the new age of air transportation neighbour to the USSR.

In this new air age, which has mastered vast oceanic distances and polar solitudes but has made universal the terror of nuclear warfare, Canada stands astride the crossroads of the world—"the dead centre of the new heartland of air geography".

The building of Canada "*a mari usque ad mare*" has witnessed an arduous and tenacious struggle in defiance of geographical and economic forces and its achievement as a distinct national entity has constituted no mean challenge to the vision, character and resourcefulness of its people. The major topographical and physiographic trends in the North American continent being longitudinal, the 'Fathers of Confederation' in building a transcontinental Dominion overcame such north-south features as the eastern Appalachians and the western Cordilleras, linking the Maritimes to New England and British Columbia to the Pacific states; the vast forbidding Canadian Shield separating east from west and crowding settlement southward to the shores of the Great Lakes; and to the west, the great Interior Plains whose structural continuity embraces the heart of the continent.

However great the north-south trends with their sectional influence, the builders of Canada have found support in many other features of relief and

drainage following a latitudinal trend. The extensive arc-like waterway of the St. Lawrence, the Great Lakes, Rainy River, Lake of the Woods and Lake Winnipeg provided not only water routes for the early explorers and fur traders but induced settlement and economic and political development along an east-west course. Later, Canada's pioneer statesmen and railway builders found Nature their ally as they sought to link the Maritime Provinces, Lower and Upper Canada, the Prairies and British Columbia in a trans-continental political and economic union. Direct east-west rail connections through such valleys as Matapédia in eastern Quebec and such mountain passes as Crowsnest, Kicking Horse and

#### COMMONWEALTH



*The Rt. Hon. C. D. Howe, Minister of Trade and Commerce, and his Deputy, Mr. W. F. Bull, visited Australia and New Zealand in the summer of 1955 to discuss trade and other matters of mutual concern.*

#### UNITED STATES



*Mr. John Foster Dulles, Secretary of State of United States (right), in Ottawa to confer with Canadian Government leaders, is shown with Prime Minister St. Laurent, the Hon. Pearson, Secretary of State for External Affairs, and Mr. R. D. Stuart, United States Ambassador to Canada.*

Yellowhead in the western Rockies tended to offset the north-south geographical pressures and their accompanying sectionalism, and became indeed the very warp of Canadian national unity and identity.

Many facets of Canada's development, from its earliest colonial beginnings to its present stature among the nations, are the product of a delicate harmonizing of diverse geopolitical forces and interests. In the pathway of westward European colonial expansion, Canada early became the beneficiary of priceless institutional and cultural traditions which immigrant peoples brought to their new homeland. Paramount among these inherences were, on the one hand, the British parliamentary institutions, conventions of responsible government and democratic concept of freedom of the individual and, on

## UNITED NATIONS

Canada has assumed a constructive and intermediary role in Commonwealth and international relationships, devoting untiring efforts to the cause of freer trade, co-operation and peace among the nations of the world.

## NATO



Canadian jet fighters zoom over their base in Germany.



Capt. W. R. Mathieu, Member of the Canadian Truce Team in Indo-China, discussing strategy at the village of Muong Peun with the Royal Laotian Army post commander.

the other, the distinctive ethnic, linguistic and religious institutions and traditions of the French Canadians. The achievement of Canadian nationhood on a transcontinental basis that reconciled both internal physiographic and cultural diversities and at the same time resisted the

manifold cumulative attractions and pressures from the United States called not only for the unique development of a combination of the British parliamentary system of Cabinet government with a distinctly Canadian adaptation of the United States system of federalism, but also for the persistent application by its builders of such qualities as resourcefulness and tenacity, moderation and tolerance, adaptability and compromise.

While Canada's national heritage and development and the fibre of the Canadian character are the wealthier for having as their basis two diverse but closely related cultures, strengthened and enriched by the flow of peoples and cultures from many other lands, it is in the enormous wealth and variety of natural resources (including many of the key materials of power) and in the intensity of current industrial growth that one finds a major basis for Canada's strategic position in the post-war world.

At present Canada ranks first among the nations in the production of newsprint, nickel, asbestos and platinum; second in the world's output of wood pulp, gold, aluminum, zinc, uranium and hydro-electric power; third in silver and sawn lumber; and fourth in wheat, copper and lead. None the less,



the recent discoveries of vast new resources of energy—oil, natural gas, uranium—coupled with the continued expansion of low-cost hydro-electric power, basic to its aluminum, pulp and paper, electro-metallurgical and electro-chemical industries among others; the widely distributed non-ferrous metal developments; the revolutionary growth of the iron-ore developments; the sudden opening of the heretofore inaccessible and untapped resources of the Canadian Shield through the application of new scientific and technological methods in the fields of transportation, surveying and resource exploitation: all these post-war advances greatly broaden Canada's industrial base, provide the essential elements of vast economic power and yet demand unswerving endeavours on behalf of the cause of freer international trade.

Canada since the War has been steadfast in the practice and advocacy of policies dedicated to the extension of international trade. Enlightened self-interest—the prosperity of the Canadian people, the continued rapid expansion of the Canadian economy (as indicated by the rise of the gross national product from over \$12,000,000,000 in 1946 to \$26,600,000,000 in 1955 and by the increase of the index of industrial production from 171.9 to 265.9 during the same period) and the need for export markets—provide every assurance that Canada as the fourth world trader will continue to pursue the path of multilateral trade on a broad front and in so doing contribute not a little to the removal of barriers among nations.

Moreover, Canada's national development in close association with kindred nations of the British Commonwealth and in peaceful co-operation with the United States, with which it shares a continent, has enhanced its strategic position among the nations and has given it an influence on the world stage far beyond what might be expected of a nation of 16,000,000 people. Noteworthy for leadership in the evolution of the modern Commonwealth by the most pragmatic of processes, Canada shares in a co-operative partnership of sovereign nations that straddles four continents, cuts across various racial divisions and cultures and, in its very variety and tolerance, offers an example to the world of how nations may live in the pursuit of peace, liberty and progress. Such intimate association on a world-wide scale has broadened Canada's understanding, strengthened its powers of mediation and equipped it for a leading role on behalf of world peace and freedom in the larger international sphere—the United Nations.

Canada's association with the United States has also been close and extensive from the days of their common origin in colonial America, through expansion and settlement over their respective halves of the continent, to their inevitable present-day intimacy arising from the facts of geography, economics and defence and the concepts of freedom and democracy which they share. Across their common frontier flows unprecedented floods of cultural communications, economic goods, investment capital and friendly intercourse, while the accident of geography, which makes Canada in the new age of air transportation a northern buffer between the United States and the great land mass of the USSR, links the two neighbours in the closest co-operation on behalf of joint continental defence, exemplified in the three radar warning lines on Canadian soil.

But Canada's strategic position in the northern hemisphere in the era of the hydrogen bomb and the supersonic jet plane, impaled as it is between the two most powerful nations of the modern world, ensures that its thinking and acting cannot be restricted to matters of defence. Hence, its statesmen at



*Canadian Pacific Air Lines, on June 3-4, 1955, inaugurated the first new travel route in centuries—a polar route "over the roof of the world" to Europe. CPA's "Empress of Amsterdam" arrived at Schiphol Airport which serves the Netherlands city of Amsterdam after an 18-hour flight from Vancouver, a distance of 4,825 miles.*

home, at the United Nations and at the capitals of the world have been devoting their untiring efforts to the lessening of international fears, suspicions and misunderstandings, to the opening of channels of communication between nations, to the application of nuclear energy to peaceful endeavours, and to the preservation and strengthening of the peace. Canada brings into the present world situation of uneasy tensions no mean record of resourcefulness, moderation, compromise and toleration. On the march to a great destiny and conscious of all the implications of strategic position, the constant application of these distinctive traditions to the progressive building of an era of global peace and goodwill constitute the supreme challenge to the character of Canada's people and to every resource of Canadian statesmanship.

### • *The Provinces—Their Physiography and Economy*

Politically, Canada is divided into ten provinces and two territories. The first step in the federal union of British North American possessions took place in 1867 when the three provinces known as Canada (Ontario and Quebec), New Brunswick and Nova Scotia were united into one Dominion under the name of Canada. British Columbia entered the Union in 1871 and Prince Edward Island in 1873. The vast central-northern area now included

in the three Prairie Provinces and the Yukon and Northwest Territories was transferred from the Hudson's Bay Company to Canada in 1870 and from portions of this territory Manitoba was created in the same year and Saskatchewan and Alberta in 1905. Newfoundland became a province of Canada in 1949. Each province is sovereign in its own sphere; the Yukon and Northwest Territories, while enjoying a measure of self-government, are under the jurisdiction of the Federal Government.

This great country, with a total area of 3,845,774 sq. miles, is characterized by a wide diversity of contour, soil, climate and resources and therefore of development and settlement.

### *Approximate Land and Fresh-Water Areas of the Provinces and Territories*

Province or Territory	Land	Fresh Water	Total
	sq. miles	sq. miles	sq. miles
Newfoundland (incl. Labrador).....	147,994	7,370	155,364
Prince Edward Island.....	2,184	--	2,184
Nova Scotia.....	20,743	325	21,068
New Brunswick.....	27,473	512	27,985
Quebec.....	523,860	71,000	594,860
Ontario.....	333,835	78,747	412,582
Manitoba.....	219,723	26,789	246,512
Saskatchewan.....	220,182	31,518	251,700
Alberta.....	248,800	6,485	255,285
British Columbia.....	359,279	6,976	366,255
Yukon Territory.....	205,346	1,730	207,076
Northwest Territories.....	1,253,438	51,465	1,304,903
<b>Canada.....</b>	<b>3,562,857</b>	<b>282,917</b>	<b>3,845,774</b>

The main physical and economic features of each of the provinces and territories are given below.

**Newfoundland.**—Canada's newest and most easterly province was Britain's oldest colony before it elected to become part of Canada in 1949. The Province consists of a triangular island of 42,734 sq. miles, lying across the mouth of the Gulf of St. Lawrence, and the Coast of Labrador, an area of 112,630 sq. miles on the mainland.

The Island is part of the Appalachian mountain range which extends southward through the Maritimes and the eastern United States. Much of the Island is a waste of barren-lands, bogs and lakes unsuitable for cultivation or habitation but the river valleys and the west coast are thickly forested. The climate is moderate with average temperatures ranging from about 20°F. in January to 60°F. in July. The prolific fishing grounds off the southeastern part of the Island attracted the first settlers and until recently the fishing industry was the mainstay of the economy. Today, a large proportion of the Island's 404,000 people, many of them descendants of fisher folk who came from the British Isles, are scattered along the southeastern coasts in small communities, living simple picturesque lives and for the most part still dependent upon the sea for their livelihood, their transportation and communication. One-fifth of the population live in the metropolitan area of St. John's, the capital city. However, although fishing and fish-processing occupy a large part of the labour force, two other basic industries are of greater importance in point of value of production and as producers of income. The



foundland village  
around a snug  
ur. Most of the  
's people live be-  
the sea in small  
unities such as this.



forested areas provide the raw materials for thriving sawmilling and pulp and paper industries, and extensive mineral deposits yield large quantities of zinc, iron ore, lead, fluorspar and copper. Recently an intensive government development program has been instrumental in opening up many new small manufacturing industries.

The region of Labrador forms part of the Canadian Shield and is a great plateau whose surface is a mosaic of bare rocks, forested valleys, swamps and innumerable lakes. No development of the area's resources has as yet taken place with the exception of the production of iron ore from the large hematite deposits on the Quebec-Labrador boundary.

**Prince Edward Island.**—This, Canada's smallest province, lies in the semi-circular arm of the Gulf of St. Lawrence, separated from the Provinces of New Brunswick and Nova Scotia by the Strait of Northumberland. It is about 120 miles long and varies in width from two to 34 miles, so that no part of it is more than 17 miles from the sea. The surface is a rolling lowland overlain by rich, sandy, deep red loam which is the basis of its distinct agricultural economy. About 85 p.c. of the land is arable and almost half of the Island's 108,000 people live on farms, obtaining the major part of their income from the sale of seed potatoes, live stock and poultry, dairy products and eggs. Fishing and fish-processing are also of great importance to the Island's economy. There are no great extremes of temperature in Prince Edward Island because of the moderating influence of the sea and in summer months visitors throng the Island attracted by its rural charm and by the splendid bathing beaches on its northern coast.

**Nova Scotia.**—The peninsular Province of Nova Scotia, almost entirely surrounded by salt water, is connected with the mainland only by the Isthmus of Chignecto, 17 miles in width. The Province is 381 miles long and from 50 to 105 miles wide. The northern portion, Cape Breton Island, has recently been joined to the mainland by a mile-long causeway. The Atlantic coast of Nova Scotia is low and rocky, indented by many fine harbours. The Bay of Fundy coast, bolder and almost unbroken, presents many fertile plains and river valleys, while inland the country is well forested and has excellent farming and orchard areas. Much of the scenery of the Province is very beautiful.

The sea moderates the temperature in both summer and winter and the lack of extremes of heat and cold assists the rapid growth of vegetation. Agriculture supports a larger proportion of the population than any other industry in the Province, live stock and poultry, dairy products, eggs and fruits bringing the highest returns to the farmers. Mining and fisheries are the other basic industries. Coal-mining contributes 70 p.c. of the mineral production which also includes gypsum, salt and barite, and the chief fishery products are lobster, cod and haddock. These three industries together with forestry provide raw materials for the Province's growing manufacturing industries which account for 39 p.c. of the total value of its production. More than one-third of Nova Scotia's 683,000 people are concentrated in the metropolitan area of Halifax, the provincial capital and the largest Atlantic port, and in the metropolitan area of Sydney-Glace Bay, the main centre of the mining industry. Another 20 p.c. reside in the counties bordering Northumberland Strait.

**New Brunswick.**—The Province of New Brunswick, the largest of the three Maritime Provinces, is almost rectangular in shape, measuring from east to west about 190 miles and from north to south 230 miles. It has a 600-mile coast line on the east and south, adjoins the United States on the west and the Province of Quebec on the north and northeast. There are only two high-land areas in the Province, one in the south and the other in the northwest and the remainder of the Province is rolling countryside with varied and picturesque vistas, many lakes and winding waterways. The St. John River, the largest east of the St. Lawrence, drains a basin of 21,500 sq. miles and in its valley live about 40 p.c. of the Province's 558,000 people. Settlement generally in the Province follows the coast line and the river valleys. The climate is relatively moderate and dry with occasional extremes in both summer and winter. The production of forest products is by far the most important element in the Province's economy. About 81 p.c. of the area is under forest, most of it merchantable timber within reach of transportation by water, rail or road. Agriculture is also significant as well as fishing. Mineral production is small but the discovery in 1952 and subsequent development of one of Canada's largest base-metal orebodies near Bathurst has been a highlight of metal-mining activity in Eastern Canada. The major manufacturing industries are based on the primary resources of forestry, agriculture and fisheries.

**Quebec.**—The Province of Quebec lies on both sides of the St. Lawrence River which is the great waterway of Eastern Canada. About 50,000 of its 595,000 sq. miles are south of the River and to the north and west it stretches to Labrador and Hudson Bay. This northern region is part of the Canadian Shield and the portion beyond the Saguenay River is largely unexplored and sparsely settled. Except for the treeless zone north of latitude 58°, most of the Province supports a valuable tree growth, the exploitation of which gives Quebec first place in the production of pulp and paper, Canada's leading industry. Quebec is also foremost among the provinces in the development of hydro-electric power, and its mining industry ranks next to Ontario's and Alberta's. The Province produces 60 p.c. of the world output of asbestos and is a leading Canadian producer of copper, gold, zinc and iron ore as well as the only producer of molybdenite and titanium. The valley of the St. Lawrence, extending from Quebec city to the western extremity of the Province, is a very fertile plain where the climate and soil, especially in the Eastern Townships, is well suited to general farming. In this valley is concentrated the



Prince Edward Island is really one big farm—85 p.c. of the land is cultivated and agriculture is the Province's specialty.

peninsular Province of Nova Scotia is almost entirely surrounded with salt water. The low rocky Atlantic coast is indented with harbours, large and small, that shelter fishing fleets.

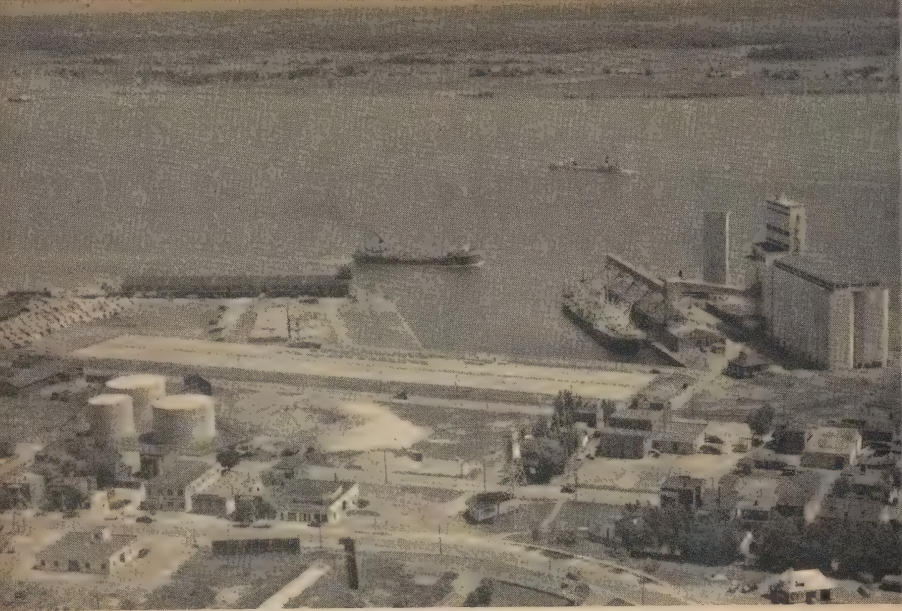


The rolling hills of New Brunswick are clad with coniferous forests that form the basis of its great pulp and paper industry.



Province's great manufacturing industries and the greater part of its population. Montreal, the largest city and the largest port of Canada, contains about one-third of the Province's 4,520,000 people; another million live in the southwestern triangle below the St. Lawrence River and the remainder are located within 35 miles of the Ottawa, St. Lawrence and Saguenay Rivers and Lake St. John. Quebec accounts for 30 p.c. of the value of Canada's manufactured goods, and its products are greatly diversified.





*The broad St. Lawrence has had an immeasurable influence on the development of Canada's central provinces, Quebec and Ontario. It was the original avenue of commerce—along it the people settled and along it they established their industries. Its role in the future is one of brilliant promise.*

---

**Ontario.**—This Province, lying between Quebec on the east and Manitoba on the west, is usually regarded as an inland province but its southern boundary has a fresh-water shore line of 2,362 miles on the Great Lakes and its northern limits have a salt-water shore line of 680 miles on Hudson Bay. The surface of Ontario is characteristic of the Canadian Shield, except in the southern triangle lying between the lower lakes and the Ottawa River where the surface is undulating to rolling. The southern part of this triangle supports Canada's greatest concentration of population and is recognized as one of the world's major industrial areas. Almost 3,500,000 people, 68 p.c. of Ontario's population and 22 p.c. of the population of Canada, live and work in the urban centres and rich farming areas south of a line running from near Oshawa, just east of Toronto on Lake Ontario, to Georgian Bay and approximately one third of these live in the metropolitan area of Toronto. Another 20 p.c. of Ontario's population live east of a line connecting Oshawa on the south and North Bay, and the remaining 12 p.c. are located at the head of Lake Superior in the northern mining districts. Ontario has the greatest diversification of manufacturing production of any province and predominates in the production of many of the forty leading industries of the country. The tremendous natural resources of the Province have been a contributing factor in this development. Ontario has long been Canada's leading producer of minerals. It accounts for 82 p.c. (excluding USSR) of the world output of nickel, is a leading world source of copper and platinum metals and is rapidly gaining prominence as a source of iron ore and uranium. Great forest resources in proximity to hydro-electric power form the basis of its large pulp and paper industry. The lands along the St. Lawrence and the lower lakes, where the

climate is very moderate and rainfall plentiful, possess excellent soil, and constitute a highly productive general farming and fruit-growing district.

**Manitoba.**—Manitoba, the most central province of Canada, is a land of wide diversity, combining 400 miles of sea-coast along its northeastern boundary on Hudson Bay, great areas of mixed forests, large lakes and rivers and a belt of treeless prairie with very fertile soil of great depth. Most of that part of the Province lying north of Lake Winnipeg is underlain by rocks of the Canadian Shield. Within this area are numerous deposits of base metals and from mines developed there Manitoba obtains all its metal output. The southern portion of Manitoba forms part of the great plains region of central Canada and it is this region that supports 90 p.c. of the population of the Province, half of them engaged in grain-growing, cattle-raising and dairying. The metropolitan area of Winnipeg itself contains almost half of the Province's population. There, a large number of small and medium-sized establishments manufacture a great diversity of products, but the majority are concerned with the production of meat and other food products, clothing and petroleum products. Winnipeg is the main railway centre for Western Canada, which necessitates the operation of large shops for the maintenance of rolling-stock. The Province is well supplied with available and developed water power. The climate is especially invigorating with an unusual range of temperature which is modified by low humidity. Rainfall is abundant in the growing season.

**Saskatchewan.**—This Province lies in the centre of the Great Plains Region and reaches, as do the Provinces of Manitoba and Alberta, from the International Boundary on the south to the 60th parallel of latitude on the north. The Canadian Shield extends over the northern third and this portion of the Province is abundantly watered by lakes and rivers and contains rich timber resources, base metals and uranium. The development of large uranium deposits in the Beaverlodge area north of Lake Athabasca is proceeding rapidly. The plains of the southern two-thirds of the Province, with their deep fertile soils, support Canada's most intensive wheat cultivation and have valuable oil, gas and coal reserves. The economy of Saskatchewan is largely

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g areas.



agricultural. Almost half of the 889,000 people live on farms and another 20 p.c. live in rural non-farm areas. The population is spread fairly evenly over an area stretching 300 miles from the United States boundary, while only 20,000 persons live in the northern half of the Province. Power in the more settled areas is generated in fuel plants. The climate of Saskatchewan is given to extremes of temperature but the humidity is low. Most of the rain fall, averaging 15 to 18 inches a year, falls during the growing season.

**Alberta.**—Within the borders of Alberta there exists a great wealth of natural resources. It possesses large coal resources, its oil and gas reserves are almost unlimited, it has millions of acres of fertile soil, plentiful hydro-electric power, timber in abundance, and an invigorating healthful climate. The Province has three marked physical features—the plains, the foothills and a portion of the Rocky Mountains within its borders. The prairie section in central and southern Alberta is devoted to the growing of wheat and vegetables. In parts of this area rainfall is uncertain and irrigation is necessary for crop-raising. Cattle ranching is common in the very dry unirrigated sections and in the Rocky Mountain foothills. Northward, extending beyond the city of Edmonton, are the parklands where vegetation is more abundant and mixed farming is carried on, with emphasis on dairying and hog-raising. Northward again this area merges into mixed and coniferous forest. Over half the Province's 1,066,000 people reside in the central section in the great oil and grain-producing area, a belt about 100 miles wide extending roughly 200 miles from Calgary to Edmonton. To the south the population is more scattered. Permanent agricultural settlement reaches its farthest northern point in Canada in the Peace River Valley in northwestern Alberta. Slaughtering and meat-packing holds first place among the Province's manufacturing industries followed by petroleum products. Industrial activity is increasing rapidly. Many of the new establishments are producing supplies for the oil and gas industries; and chemicals based on these industries have made striking gains.

**British Columbia.**—The Province of British Columbia lies almost entirely within the Cordilleran Region of North America and is traversed from south to north by three principal ranges of mountains—the Rocky Mountains to the east, the Columbia and Cassiar Systems in the interior and the Coast Range to the west. This great mountainous province, which is 760 miles from north to south and averages more than 400 miles in width, supports almost all of its population in the extreme southerly portion. Forty per cent of its 1,305,000 people live in the Vancouver-Howe Sound area, 180,000 live in the adjoining Lower Fraser Valley and another 200,000 in the southern part of Vancouver Island. In other words, three-quarters of British Columbia's population lives in about 5 p.c. of its area. Half of the remainder are in the southeastern corner. This Province is highly industrialized, manufacturing representing almost half of the value of its output. The Province's own great wealth of natural resources provide the raw material and the power requirements for these industries. The forests support the lumbering, pulp and paper and wood products industries which are of primary importance. The estuarial salmon fisheries have resulted in the establishment of large canneries. Cattle raised on the southern interior grazing lands are the basis of the slaughtering and meat-packing industry and the famous fruit and vegetable-growing districts in the southern river valleys and on Vancouver Island supply the



food industries. The mountains themselves are rich in minerals. The Sullivan mine at Kimberley is one of the world's leading producers of lead and zinc and was the basis of the establishment of what is now the largest smelting, refining and chemical company in Canada. Considerable quantities of gold, copper, silver, tungsten, iron ore and coal are also mined. A feature of recent progress in British Columbia is that new developments are taking place in areas far removed from established industrial centres. Growing lines of communication and transportation are fanning out from and leading into formerly locked interior areas to tap a vast new potential.

**The Yukon and Northwest Territories.**—These vast northern territories include all that part of the North American Continent lying between the 60th parallel of latitude and the North Pole, except for Alaska and Greenland. They occupy 39 p.c. of the surface of Canada and are areas of contrast and extremes in topography, flora, fauna and climate. Surface-features vary from the treeless plains of the far north, the rolling hills of the Canadian

*British Columbia's development, until recently, has been mainly in the south-western corner of the Province where about three-quarters of its people live and work. But industry is fanning out—the great mountain fastnesses with their wealth of forest and mineral resources are being invaded and are beginning to yield up their treasures.*



Shield in the east and the forested valley of the Mackenzie River, to some of Canada's highest mountain peaks in the west. The Mackenzie River and the Yukon River, two of the longest in Canada, together with Great Slave and Great Bear Lakes, both over 11,000 sq. miles in area, are important transportation routes. Mineral production, though of potential importance, is limited. Gold is mined in considerable quantity in Yukon, as well as silver, lead and zinc. Oil from the Norman Wells area, pitchblende products from the Great Bear Lake area and gold from the Yellowknife area are the chief minerals of the Northwest Territories. Forestry and agriculture are locally important in some areas. Population of the Territories numbers about 28,000—native Indians and Eskimos, fur traders, fishermen, miners, missionaries, scientists and government officials; 26,000 of them live in the Yukon and Mackenzie River District. The realization of the strategic importance of these northern wastes as well as the growing use of air transport has added to activity in this part of the country both for defence and for economic purposes.

### *Canada's National Capital*

In 1855, the community of Bytown, which had grown up at the junction of the Ottawa and Rideau Rivers around the headquarters of the Royal Engineers commissioned to build the Rideau Canal, was incorporated and its name changed to Ottawa. Two years later, Ottawa, then a city of 10,000 people, was selected by Queen Victoria as the seat of the Government of Canada. Quebec, Montreal, Kingston and Toronto had each been for a time the Capital of Canada and each aspired to become the permanent Capital but, though they were all at the time more important centres, "in the judgment of Her Majesty" Ottawa combined "more advantages than any other place in Canada for the permanent seat of government". However, it was not until 1865 that the public services were moved to the new building erected originally by the Province of Canada and a proclamation issued fixing the Capital permanently at Ottawa. In 1867, when the Provinces of Nova Scotia and New Brunswick were joined with the Province of Canada, Ottawa became the Capital of the new Dominion which, within a decade, was extended from sea to sea.

Ottawa is today a city of 205,000 people dwelling in an area of 27,220 acres. Its early growth was comparatively slow because it was a city of government workers and did not encourage industry to any extent. Even now, of its labour force of approximately 90,000 people, 30,000 are employed by the Federal Government.

Ottawa is a self-governing municipality but, as the political Capital, its planning and development has long been the concern of the Federal Government. The splendour of its natural setting high above the river from which it took its name and facing the rolling horizon of the Gatineau Hills has been enhanced by the beauty and dignity of its public buildings, its driveways and its parks, making it one of the more picturesque Capitals of the world. Now a new Ottawa within a beautified preserve of some 900 sq. miles is growing from a master plan approved by Parliament in 1951. The National Capital Planning Committee, under the Federal District Commission, has made considerable progress in planning new buildings, removing crosstown railway tracks, rebuilding a main artery on which are located several national buildings and residences, acquiring land and constructing parkways. Gatineau Park



*Each May, a million tulips emblazon Ottawa's parks and driveways with a riot of colour. On the curve of the hill around Dow's Lake alone, fifty thousand of them, planted in colour groups of four or five thousand, are a delight to the eye.*

a 50,000-acre area in the Gatineau Hills just north of the city, a district long loved and widely used for recreational purposes by the people of Ottawa, is under development as a park and game sanctuary.

In the course of the years, through this plan, loftily conceived and far-seeing, allying the aesthetic and the practical, there will emerge a Capital that will be worthy of Canada's achievements and of the international role that is her future.

### Land Resources

The area of Canada, including fresh-water, is classified by tenure as follows:—

	<u>Sq. miles</u>		<u>Sq. miles</u>
Alienated from the Crown or in process of alienation.....	376,525	Provincial lands other than provincial parks and provincial forest reserves.....	1,788,346
Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations.....	1,527,083	Provincial Parks.....	42,294 <sup>1</sup>
National Parks.....	29,147	Provincial forest reserves..	74,688 <sup>1</sup>
Indian reserves.....	9,173	TOTAL AREA.....	<u>3,845,774</u>
Federal forest experiment stations.....	186		

<sup>1</sup> Duplication of 1,668 sq. miles in Manitoba, see p. 16.



The high figure for federal land is accounted for by the fact that it includes the total areas of the Yukon and Northwest Territories.

Of Canada's total land area of 3,562,857 sq. miles, 7.6 p.c. is occupied by agricultural land—under crop, in woodland or unimproved. Forested land, both productive and unproductive, accounts for 41.7 p.c. of the total and the remainder includes rock, muskeg, urban land, road allowances, etc.

## National and Provincial Parks

The National and Provincial Parks of Canada have a total area of almost 71,500 sq. miles. They are areas of particular natural beauty and special interest that have been set aside for the benefit and enjoyment of the Canadian people and visitors from other countries.

The National Parks had their beginning in 1885 when an area of 10 sq. miles around the hot mineral springs at Banff, Alta., was reserved for public use. Since then the system has been extended to include an area of more than 29,000 sq. miles in 29 separate units—scenic and recreational parks, wild animal parks set aside for the protection and propagation of species in danger of extinction, and national historic parks. In addition, about 500 sites of historic importance have been marked. The Parks are supervised by the National Parks Branch, Department of Northern Affairs and National Resources. Many of them are easily accessible by highway, rail or air and offer every type of accommodation from camping facilities to palatial hotels and cosy cabins. Their names and areas are as follows:—

<u>Park</u>	<u>Area</u>	<u>Park</u>	<u>Area</u>
	sq. miles		sq. miles
<b>Scenic</b>		<b>Wild Animal</b>	
Jasper, Alta.....	4,200.0	Wood Buffalo, Alta. and N.W.T.	17,300.0
Banff, Alta.....	2,564.0	Elk Island, Alta.....	75.0
Prince Albert, Sask.....	1,496.0		
Riding Mountain, Man.....	1,148.0	<b>Historic</b>	
Kootenay, B.C.....	543.0		acres
Glacier, B.C.....	521.0	Fortress of Louisburg, N.S....	339.5
Yoho, B.C.....	507.0	Fort Lennox, Que.....	210.0
Cape Breton Highlands, N.S....	390.0	Fort Beauséjour, N.B.....	81.3
Waterton Lakes, Alta.....	204.0	Fort Prince of Wales, Man....	50.0
Mount Revelstoke, B.C.....	100.0	Fort Battleford, Sask.....	36.7
Fundy, N.B.....	79.5	Fort Anne, N.S.....	31.0
Prince Edward Island, P.E.I....	7.0	Port Royal, N.S.....	20.5
Point Pelee, Ont.....	6.0	Lower Fort Garry, Man.....	12.8
Georgian Bay Islands, Ont....	5.4	Fort Wellington, Ont.....	8.5
St. Lawrence Islands, Ont.....	189.4	Fort Malden, Ont.....	5.0
	(acres)	Fort Chambly, Que.....	2.5

Six of the provincial governments have established Provincial Parks. Though many of them are undeveloped areas set aside in their natural state, some of the larger parks, especially in British Columbia, Quebec and Ontario, are highly developed and well served with hotels and other tourist accommodation and have organized recreational facilities. The total area of provincial parkland is about 40,626 sq. miles, located as follows: Quebec, 20,264 sq. miles; British Columbia, 12,496 sq. miles; Ontario, 5,079 sq. miles; Saskatchewan, 1,685 sq. miles; Manitoba, 937 sq. miles; Alberta, 117 sq. miles; and Newfoundland, 48 sq. miles. In Manitoba, park developments are being carried out in two of the Province's forest reserves having a combined area of 1,668 sq. miles.

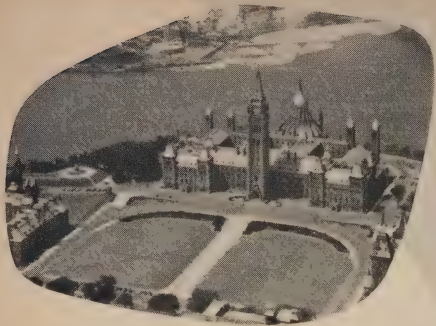


*Our hands can rarely hold too wide a beauty . . .  
Enough to love one wooded trail, one wonted sight,  
One green cathedral's dappled light.*









# THE PEOPLE, THEIR GOVERNMENT and SOCIAL DEVELOPMENT



Population

Government

Education

Scientific Research

Health and Welfare

Labor

Cultural Relationships



# Population

THE Canadian population is a blending of many cultural groups. Most of the people now living in Canada are descendants of persons who migrated to the country at one time or another since the early days of colonization, bringing with them their industrial and social heritages which, in the Canadian atmosphere, have been integrated to form a new and distinctive culture. While recent adult newcomers, of which there have been many thousands during the past few years, may long remain merely transplanted nationals carrying cultural gifts from other lands, their children, brought up in Canadian schools under Canadian laws and ideals, will readily become integrated into the Canadian community and, intermarrying with Canadians of other ethnic origins, will enrich the mosaic of the national character and in due course contribute to a heightening of Canadian cultural achievement.

Throughout the years, there have been periods of intensive immigration of particular ethnic groups and periods when new arrivals were few, depending upon economic conditions in this new country and in the countries from which they came. At the taking of the 1951 Census, after six years of fairly high post-war immigration, 85.3 p.c. of the population had been born in Canada but in order to continue the record of settlement that began with the 1881 Census the 'origin' was recorded of every member of the population whether he was a new arrival or had generations of ancestors born in this country. The language spoken by himself or by his paternal ancestor before coming to Canada was generally used to establish origin as distinct from country of birth or nationality. The many who spoke English were usually distinguishable as of English, Scottish, Irish or Welsh descent. Persons of mixed Indian and white parentage living on reserves were recorded by the Census as "Native Indian" but those living off reserves were recorded according to the origin on the father's side. Similarly, persons of mixed white and Chinese, Japanese, Negro and other parentage were recorded through the father's family.

The earliest settlers in what is now Canada were French. British immigration was very small until the arrival of the United Empire Loyalists during and immediately following the American War of Independence. After 1784 British interest in Canada increased and with the economic dislocations that accompanied the industrial revolution settlers from the British Isles came in great numbers. By 1881, when the first information on the origins of the people as a whole became available through the Census, 59 p.c. of the population were of British Isles origins and 30 p.c. of French descent, together comprising almost 90 p.c. of the whole population. The closing years of the century inaugurated a new stage in the growth and ethnic variety of Canada's population. The development of new mining areas, the expansion of forest industries, the abundance of free homesteads on the fertile western plains and the new wave of railway construction brought a rapid increase in immigration that witnessed an influx of many new ethnic groups from the European continent. The outbreak of war in 1914 and the depression of the 1930's reduced the number of entrants to a mere trickle until the aftermath of a second world war once again brought hundreds of thousands of newcomers to Canada's shores in search of peace and freedom and a new life.



**Quebec City, the heart of French Canada.** The city was founded early in the seventeenth century by French colonists, the first to settle permanently in what is now Canada, and even today more than 90 p.c. of its people are of French descent.

Thus by 1951, when the latest decennial census was taken, the proportion of the population belonging to the two basic stocks was found to have decreased to 78·3 p.c.—the British group had declined to 46·7 p.c. and the French had risen slightly to 31·6 p.c. The changes in the numbers and percentage importance of the main origin groups in the country in the 1881-1951 period are given in the following table.

*Distribution of the Population, by Origin, 1881, 1911 and 1951*

Origin	1881		1911		1951 <sup>1</sup>	
	No.	p.c.	No.	p.c.	No.	p.c.
British Isles.....	2,548,514	58·9	3,999,081	55·5	6,371,905	46·7
French.....	1,298,929	30·0	2,061,719	28·6	4,309,326	31·6
German.....	254,319	5·9	403,417	5·6	619,627	4·5
Italian.....	1,849	<sup>2</sup>	45,963	0·6	152,142	1·1
Jewish.....	667	<sup>2</sup>	76,199	1·1	181,456	1·3
Netherlands.....	30,412	0·7	55,961	0·8	264,091	1·9
Polish.....	—	—	33,652	0·5	219,766	1·6
Scandinavian.....	5,223	0·1	112,682	1·6	282,455	2·1
Ukrainian.....	—	—	75,432	1·0	395,023	2·9
Asiatic.....	4,383	0·1	43,213	0·6	72,315	0·5
Native Indian and Eskimo..	108,547	2·5	105,611	1·5	164,480	1·2
Other.....	71,967	1·7	193,713	2·7	615,427	4·5
<b>All Origins.....</b>	<b>4,324,810</b>	<b>100·0</b>	<b>7,206,643</b>	<b>100·0</b>	<b>13,648,013</b>	<b>100·0</b>

<sup>1</sup> Excludes Newfoundland for comparison with previous census years; 93·5 p.c. of Newfoundland's population were of British Isles origins and 2·7 p.c. of French descent.

<sup>2</sup> Less than 0·05 p.c.





A Scottish family recently arrived in Canada, expecting to find the beauties of the prairie. More than 100,000 of the immigrants arriving in the past few years are of British Isles origins.

The regional settlement of the larger origin groups in 1951 is given in the following table. About 46 p.c. of the people of British Isles origin lived in Ontario, which had about one-third of the total population of Canada, and 11 p.c. were in British Columbia. Over three-quarters of the people of French origin were in Quebec Province and 11 p.c. were in Ontario. The families of many of these people have lived in Canada for several generations and the same is true of people of German origin. About 80 p.c. of them were born in Canada and 83 p.c. of them live in Ontario and the Prairie Provinces. More than two-thirds of the people of Ukrainian and about three-fifths of the people of Scandinavian origin live in the Prairie Provinces and, of these two origins, more than two-thirds were born in Canada, mainly descendants of people who came in the early years of the present century. Those of Netherlands origin live mostly in Ontario and the Prairies, 37 p.c. and 38 p.c. respectively, and although there was a considerable immigration of persons of Netherlands origin to Canada in the years between the end of World War I and 1951, nevertheless three-quarters of this origin reported Canada as their



Canadian industry greatly benefited from its foreign-born power. These four men represent four of the almost thirty nationalities employed in the Canadian Steel Mills. Some have been in Canada for many years but the majority have come since the end of the War.

birthplace. Over 83 p.c. of the population of Polish origin in 1951 were about equally divided between Ontario and the Prairie Provinces. Only about 55 p.c. of these people had been born in Canada, many having entered during the years immediately following the War. A large number of the post-war Netherlands and Polish immigrants located in Ontario. Over 81 p.c. of the Jewish population in Canada in 1951 were about equally divided between Ontario and Quebec and 58 p.c. of persons of Italian origin were in Ontario and 23 p.c. in Quebec.

Of the Asiatic population in Canada, about half the Chinese were living in British Columbia in 1951 and just over one-fifth in Ontario, while two-fifths of the Japanese were in Ontario and one-third in British Columbia. Before the relocation of the Japanese during the War, 95 p.c. of this group were in British Columbia. About 45 p.c. of the Negro population lived in Nova Scotia in 1951 and 40 p.c. in Ontario. Over two-fifths of the Native Indians were found in the Prairie Provinces and one-quarter in Ontario, while 70 p.c. of the Eskimo population was located in the Northwest Territories.

*Percentage Distribution of the Major Origins by Regions, 1951*

Origin	Atlantic Provinces	Quebec	Ontario	Prairie Provinces	British Columbia	Canada
	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.
British Isles.....	17.8	7.3	45.9	17.4	11.4	100.0
French.....	6.9	77.0	11.1	4.0	1.0	100.0
German.....	5.2	2.0	35.8	48.0	8.9	100.0
Italian.....	2.1	22.5	57.6	6.5	11.3	100.0
Jewish.....	1.8	40.2	41.2	14.1	2.7	100.0
Netherlands.....	10.5	1.2	37.2	38.4	12.6	100.0
Polish.....	1.3	7.7	40.9	42.5	7.4	100.0
Scandinavian.....	2.6	1.9	13.2	58.8	23.2	100.0
Ukrainian.....	0.3	3.3	23.7	66.9	5.7	100.0
Asiatic.....	5.5	10.6	30.4	18.2	35.2	100.0
Native Indian and Eskimo <sup>1</sup> .....	3.8	10.0	22.6	39.0	17.2	100.0
<b>All Origins.....</b>	<b>11.6</b>	<b>29.0</b>	<b>32.8</b>	<b>18.1</b>	<b>8.3</b>	<b>100.0</b>

<sup>1</sup> In addition, 2.5 p.c. of the Indian and 70.1 p.c. of the Eskimo population live in the Northwest Territories.

Certain origins have a marked preference for urban residence and others for rural communities. Jewish people, because they favour manufacturing,



voluntary orations take an interest in new Canadians, pro- contacts for until they feel ent that they g to the estab- social structure community.

commercial and professional, and managerial and proprietary occupations are the most highly urbanized of the racial groups. In 1951, 99 p.c. of them lived in urban areas. Persons of Italian origin are also mainly employed in the urban occupations of manufacturing and construction so that 88 p.c. of them were in urban areas. About two-thirds of the people of British Isles origin and 60 p.c. of those of French origin were urbanized and the Ukrainian group was about equally divided between town and country. On the other hand, while only 38 p.c. of the total population of Canada in 1951 lived in rural areas, 60 p.c. of those of Netherlands origin, 56 p.c. of the German origin group and 53 p.c. of the Scandinavians were rural dwellers. These people, of course, were well represented among the agricultural workers of the country. More than one-third of all the male workers of German, Netherlands, Scandinavian and Ukrainian origins were employed in agriculture.

Since the end of the Second World War it has been the policy of the Federal Government to foster the growth of the population of Canada by the encouragement of selective immigration in such numbers as can be absorbed advantageously in the national economy and to assist these people as much as possible to become quickly and satisfactorily settled in a Canadian community. In the nine years 1946 to 1954, 1,112,373 persons have come to Canada. Over one-third of them were immigrants of British Isles origin, 13 p.c. of German origin and roughly 10 p.c. each of Italian and Netherlands origin. These people made up more than two-thirds of the total immigration to Canada in those years. The following table gives more detail and separates the numbers arriving from 1946 to the Census date in 1951, which are included in the previous analyses of the Census figures, and those arriving from that date to the end of December 1954. From June 1, 1951, there was a decline to 28 p.c. in the proportion of immigrants of British Isles origin, the proportion of German origin rising to 20 p.c. and of Italian and Netherlands origins to 14 p.c. and 11 p.c., respectively.

### *Post-War Immigration to Canada, by Origin, 1946-54*

Origin	1946- May 31, 1951		June 1, 1951- Dec. 31, 1954		Total Post-War Immigration	
	No.	p.c.	No.	p.c.	No.	p.c.
British Isles.....	208,594	42.5	173,103	27.8	381,697	34.1
Baltic.....	28,154	5.7	10,438	1.7	38,592	3.5
Belgian.....	4,802	1.0	5,955	1.0	10,757	1.0
Czechoslovakian.....	7,123	1.5	3,766	0.6	10,889	1.0
French.....	12,486	2.5	17,253	2.8	29,739	2.7
German.....	25,877	5.3	120,926	19.5	146,803	13.2
Greek.....	4,159	0.8	8,857	1.4	13,016	1.2
Hungarian.....	6,264	1.3	5,941	1.0	12,205	1.1
Italian.....	27,293	5.6	89,348	14.4	116,641	10.5
Jewish.....	25,142	5.1	16,512	2.7	41,654	3.8
Netherlands.....	41,237	8.4	69,150	11.1	110,387	9.9
Polish.....	40,653	8.3	20,303	3.3	60,956	5.5
Scandinavian.....	8,565	1.7	15,401	2.5	23,966	2.2
Ukrainian.....	24,803	5.1	9,396	1.5	34,199	3.1
Yugoslavic.....	6,909	1.4	8,784	1.4	15,693	1.4
Asiatic.....	4,819	1.0	9,943	1.6	14,762	1.3
Other.....	13,865	2.8	36,552	5.9	50,417	4.6
<b>All Origins.....</b>	<b>490,745</b>	<b>100.0</b>	<b>621,628</b>	<b>100.0</b>	<b>1,112,373</b>	<b>100.0</b>

In the first nine months of 1955, Canada received 86,607 immigrants. Of this total, British arrivals from overseas countries totalled 24,032, representing



27.7 p.c. of the flow. Italians followed with 15,512 or 17.9 p.c.; German and Austrian, 15,297 or 17.7 p.c.; Netherlands, 6,367 or 7.4 p.c.; French, 1,750 or 2.0 p.c.; others from overseas countries numbered 15,750 or 18.2 p.c. Canada absorbed 7,899 immigrants from the United States during this period.

The relative addition to the numbers of the various origins in Canada through natural increase as compared with migration cannot be determined for the latest year because of lack of the necessary birth and emigration statistics. However, for the year 1951, which showed a record post-war immigration of 194,000 persons, it is possible to compare the excess of births over deaths, by origin, with additions caused by immigration for the same origins. By this procedure it has been found that for the basic British Isles and French origins natural increase accounted for 71 p.c. and 94 p.c., respectively, of the increase in population of these groups before allowing for emigration. Approximately one-half of the total increase in 1951 among all origins was contributed by the British Isles and French groups. Of the other European origins shown in the following table, only the Ukrainian recorded a larger growth by natural increase than by immigration; for most of the origins, immigration accounted for 70 to 90 p.c. of the growth in 1951, before allowing for a small number of emigrants.

*Relative Rate of Growth of Population through Immigration and through Natural Increase, by Origin, 1951*

Origin	Immigration		Natural Increase		Total Increase	
	No.	p.c.	No.	p.c.	No.	p.c.
British Isles.....	35,361	28.6	88,395	71.4	123,756	100.0
Baltic.....	8,796	—	1	—	8,796 <sup>2</sup>	—
Belgian.....	2,655	80.3	652	19.7	3,307	100.0
Czechoslovakian.....	3,199	79.9	804	20.1	4,003	100.0
French.....	6,949	6.4	102,055	93.6	109,004	100.0
German.....	33,234	74.0	11,672	26.0	44,906	100.0
Greek.....	2,918	90.9	293	9.1	3,211	100.0
Hungarian.....	4,421	81.0	1,035	19.0	5,456	100.0
Italian.....	24,532	88.8	3,086	11.2	27,618	100.0
Jewish.....	7,167	71.1	2,918	28.9	10,085	100.0
Netherlands.....	19,405	74.8	6,525	25.2	25,930	100.0
Polish.....	13,078	73.5	4,714	26.5	17,792	100.0
Scandinavian.....	6,671	57.9	4,850	42.1	11,521	100.0
Ukrainian.....	6,949	47.2	7,761	52.8	14,710	100.0
Yugoslavic.....	4,175	90.7	428	9.3	4,603	100.0
Asiatic.....	3,203	85.0	567	15.0	3,770	100.0
Other.....	11,678	53.5	10,158	46.5	21,836	100.0
<b>All Origins.....</b>	<b>194,391</b>	<b>44.1</b>	<b>245,913</b>	<b>55.9</b>	<b>440,304</b>	<b>100.0</b>

<sup>1</sup> Not available.

<sup>2</sup> Does not include natural increase.

### Citizenship

All persons born in Canada, as well as children born of Canadian parents outside of Canada if registered according to law, are Canadian citizens and cannot be deprived of their citizenship unless they themselves take definite steps to acquire another nationality. A Canadian citizen holds also the status of a British subject. Immigrants who are naturalized in Canada become citizens and British subjects and retain their citizenship so long as they remain domiciled in Canada or have authority for absence from Canada and do not commit acts that result in revocation.

Results of the 1951 Census show that 96·8 p.c. of all the people of Canada at that time were Canadian citizens, 0·7 p.c. were citizens of other Commonwealth countries, 1·7 p.c. of European countries, 0·1 p.c. of Asiatic countries and 0·6 p.c. of other countries. In 1951, 98·0 p.c. of the persons of British Isles origin and 99·7 p.c. of those of French origin owed allegiance to Canada. Corresponding percentages for other European and Asiatic countries were 89·3 p.c. and 78·7 p.c., respectively.

An applicant for citizenship is required to have resided in Canada for five years after having been admitted to Canada for permanent residence. Besides showing that he is a conscientious law-abiding citizen, he must have



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an adequate knowledge of Canadian history, geography, form of government and of the responsibilities of citizenship. During the year ended Mar. 31, 1955, certificates of Canadian citizenship were granted to 23,630 aliens. Special courts in Montreal and Toronto handle all matters pertaining to Canadian citizenship. In other centres, applications for citizenship are handled by local courts or by the Registrar of Canadian Citizenship.

The Department of Citizenship and Immigration administers the Canadian Citizenship Act and provides leadership in the building of true citizenship among all Canadians.

## ***Population Statistics***

The Census of Canada is the source of official information on the detailed characteristics of Canada's population. The Dominion Bureau of Statistics is preparing to take a limited census on June 1, 1956, which will

give a picture of the increase in the population and their movements during the previous five years. In the meantime, the latest figures available are those for 1951, except for the intercensal estimates prepared from annual birth, death and immigration figures. Estimates for 1955 are given in the following table compared with 1951 and 1941 Census figures.

*Population of Canada, by Province, 1941, 1951 and 1955*

NOTE.—Figures for 1941 and 1951 are Census figures and those for 1955 are estimated as at June 1, 1955.

Province or Territory	1941	1951	1955
	No.	No.	No.
Newfoundland.....	...	361,416	412,000
Prince Edward Island.....	95,047	98,429	108,000
Nova Scotia.....	577,962	642,584	683,000
New Brunswick.....	457,401	515,697	558,000
Quebec.....	3,331,882	4,055,681	4,520,000
Ontario.....	3,787,655	4,597,542	5,183,000
Manitoba.....	729,744	776,541	849,000
Saskatchewan.....	895,992	831,728	889,000
Alberta.....	796,169	939,501	1,066,000
British Columbia.....	817,861	1,165,210	1,305,000
Yukon Territory.....	4,914	9,096	10,000
Northwest Territories.....	12,028	16,004	18,000
<b>Canada.....</b>	<b>11,506,655</b>	<b>14,009,429</b>	<b>15,601,000</b>

Intercensal estimates are also compiled of the age and sex composition of the population. The high birth rates of recent years are reflected in the age figures for 1955. In that year there were 235 persons under the age of ten

*Hardy, a new northern Ontario town serving the Hardy mine and mill of Falconbridge Nickel Mines Limited. The mine started production in 1954.*





years for every 1,000 of total population as compared with 223 in 1951, 182 in 1941 and 213 in 1931. The trend toward 'aging', indicated by the fact that 114 persons per 1,000 population were 60 years or over in 1951, compared with 102 in 1941 and 84 in 1931, turned downward in 1955 to 111 persons.

Space permits only very brief information on certain phases of the more important census analyses.

**Rural and Urban.**—Census figures show that on June 1, 1951, 38 p.c. of Canada's population was established in rural localities and about 52 p.c. of those rural dwellers lived on farms. Thus the farm population constituted about 20 p.c. of the nation's total. In 1941 the proportion of the population residing in urban areas was 57 p.c., and in rural areas 43 p.c. The recent trend towards urbanization in Canada is no exception to that noted in many other countries. In the 1941-51 decade, the urban population, exclusive of Newfoundland, increased 30 p.c. and the rural population 3 p.c.

The growth of the urban centres with more than 15,000 population in 1951 and of the metropolitan areas is shown in the following tables.

**Populations of Incorporated Urban Centres with 15,000 or More Inhabitants, 1941 and 1951**

Urban Centre	1941	1951	Urban Centre	1941	1951
	No.	No.		No.	No.
Belleville, Ont. ....	15,710	19,519	Ottawa, Ont. ....	154,951	202,045
Brandon, Man. ....	17,383	20,598	Outremont, Que. ....	30,751	30,057
Brantford, Ont. ....	31,948	36,727	Owen Sound, Ont. ....	14,002	16,423
Calgary, Alta. ....	88,904	129,060	Peterborough, Ont. ....	25,350	38,272
Cap de la Madeleine, Que.	11,961	18,667	Port Arthur, Ont. ....	24,426	31,161
Charlottetown, P.E.I. ....	14,821	15,887	Prince Albert, Sask. ....	12,508	17,149
Chatham, Ont. ....	17,369	21,218	Quebec, Que. ....	150,757	164,016
Chicoutimi, Que. ....	16,040	23,216	Regina, Sask. ....	58,245	71,319
Cornwall, Ont. ....	14,117	16,899	St. Boniface, Man. ....	18,157	26,342
Dartmouth, N.S. ....	10,847	15,037	St. Catharines, Ont. ....	30,275	37,984
Edmonton, Alta. ....	93,817	159,631	St. Hyacinthe, Que. ....	17,798	20,236
Forest Hill, Ont. ....	11,757	15,305	St. Jérôme, Que. ....	11,329	17,685
Fort William, Ont. ....	30,585	34,947	St. Johns, Que. ....	13,646	19,305
Fredericton, N.B. ....	10,062	16,018	St. John's, Nfld. ....	44,603 <sup>2</sup>	52,873
Galt, Ont. ....	15,346	19,207	St. Laurent, Que. ....	6,242	20,426
Glace Bay, N.S. ....	25,147	25,586	St. Thomas, Ont. ....	17,132	18,173
Granby, Que. ....	14,197	21,989	Saint John, N.B. ....	51,741	50,779
Guelph, Ont. ....	23,273	27,386	Sarnia, Ont. ....	18,734	34,697
Halifax, N.S. ....	70,488	85,589	Saskatoon, Sask. ....	43,027	53,268
Hamilton, Ont. ....	166,337	208,321	Sault Ste. Marie, Ont. ....	25,794	32,452
Hull, Que. ....	32,947	43,483	Shawinigan Falls, Que. ....	20,325	26,903
Jacques Cartier, Que. ....	1	22,450	Sherbrooke, Que. ....	35,965	50,543
Joliette, Que. ....	12,749	16,064	Stratford, Ont. ....	17,038	18,785
Jonquière, Que. ....	13,769	21,618	Sudbury, Ont. ....	32,203	42,410
Kingston, Ont. ....	30,126	33,459	Sydney, N.S. ....	28,305	31,317
Kitchener, Ont. ....	35,657	44,867	Thetford Mines, Que. ....	12,716	15,095
Lachine, Que. ....	20,051	27,773	Three Rivers, Que. ....	42,007	46,074
Leaside, Ont. ....	6,183	16,233	Timmins, Ont. ....	28,790	27,743
Lethbridge, Alta. ....	14,612	22,947	Toronto, Ont. ....	667,457	675,754
London, Ont. ....	78,134	95,343	Valleyfield (Salaberry de), Que. ....	17,052	22,414
Medicine Hat, Alta. ....	10,571	16,364	Vancouver, B.C. ....	275,353	344,833
Moncton, N.B. ....	22,763	27,334	Verdun, Que. ....	67,349	77,391
Montreal, Que. ....	903,007	1,021,520	Victoria, B.C. ....	44,068	51,331
Moose Jaw, Sask. ....	20,753	24,355	Welland, Ont. ....	12,500	15,382
New Westminster, B.C. ....	21,967	28,639	Westmount, Que. ....	26,047	25,222
Niagara Falls, Ont. ....	20,589	22,874	Windsor, Ont. ....	105,311	120,049
North Bay, Ont. ....	15,599	17,944	Winnipeg, Man. ....	221,960	235,710
North Vancouver, B.C. ....	8,914	15,687	Woodstock, Ont. ....	12,461	15,544
Oshawa, Ont. ....	26,813	41,545			

<sup>1</sup> Not incorporated in 1941.

<sup>2</sup> Census of Newfoundland, 1945.



Halifax and Dartmouth bordering the magnificent natural harbour that is Canada's most important Atlantic port and Naval Base. The two jet trainers are from Shearwater Air Base and the cruiser "Quebec" lies to the right of the new Angus L. Macdonald Bridge.



Quesnel, a small town at the junction of the upper Fraser and Quesnel Rivers in the central interior of British Columbia.

## Population of Census Metropolitan Areas, 1941 and 1951

Area	1941 <sup>1</sup>	1951	Area	1941 <sup>1</sup>	1951
	No.	No.		No.	No.
Montreal, Que. ....	1,145,282	1,395,400	Windsor, Ont. ....	123,973	157,677
Toronto, Ont. ....	909,928	1,117,470	Calgary, Alta. ....	93,021	139,101
Vancouver, B.C. ....	377,447	530,728	Halifax, N.S. ....	98,636	133,931
Winnipeg, Man. ....	299,937	354,069	London, Ont. ....	91,024	121,511
Ottawa, Ont. ....	226,290	281,908	Victoria, B.C. ....	75,560	104,301
Quebec, Que. ....	224,756	274,827	Saint John, N.B. ....	70,927	78,331
Hamilton, Ont. ....	197,732	259,685	St. John's, Nfld. ....	59,474 <sup>2</sup>	67,741
Edmonton, Alta. ....	97,842	173,075			

<sup>1</sup> Areas of 1951.

<sup>2</sup> Census of Newfoundland, 1945.

**Dwellings, Households and Families.**—In 1951 there were approximately 3,400,000 occupied dwellings in Canada and 3,300,000 resident families compared with about 2,600,000 dwellings and 2,500,000 families in 1941. The increases were shared by all provinces. Because dwellings and family units increased at a faster rate than population generally, the average number of persons per household in 1951 was 4.0 compared with 4.3 in 1941 and the average per family 3.7 compared with 3.9. The average size of rural farm families in 1951 was 4.4 persons, rural non-farm 3.9 persons, and urban 3.5 persons. In about 90 p.c. of all families, the family head was also head of the household. Some 320,645 families, or about 10 p.c., were living as relatives or lodgers in the households of other persons. At the Census date 6.7 p.c. of the households in Canada contained two or more families; among the cities of 100,000 or more population, 10.4 p.c. were in this category.

### *Dwellings, Households and Families, and Persons per Household and Family, by Province, 1951*

Province	Population	Dwellings		Families	Persons per Household <sup>2</sup>	Persons per Family
		Total <sup>1</sup>	Occupied <sup>2</sup>			
	No.	No.	No.	No.	No.	No.
Nfld. ....	361,416	78,024	70,980	74,858	5.0	4.4
P.E.I. ....	98,429	24,114	22,454	21,381	4.3	4.0
N.S. ....	642,584	159,795	149,555	145,127	4.2	3.9
N.B. ....	515,697	120,639	114,007	111,639	4.4	4.2
Que. ....	4,055,681	898,914	858,784	856,041	4.6	4.2
Ont. ....	4,597,542	1,232,081	1,181,126	1,162,772	3.8	3.4
Man. ....	776,541	210,565	202,398	191,268	3.7	3.6
Sask. ....	831,728	237,406	221,456	196,188	3.7	3.7
Alta. ....	939,501	266,939	250,747	223,326	3.6	3.7
B.C. ....	1,165,210	356,651	337,777	299,845	3.3	3.3
<b>Canada ....</b>	<b>13,984,329<sup>3</sup></b>	<b>3,585,128</b>	<b>3,409,284</b>	<b>3,282,445<sup>3</sup></b>	<b>4.0</b>	<b>3.7</b>

<sup>1</sup> Includes institutions, hotels and camps as well as vacant dwellings and dwellings under construction. <sup>2</sup> Excludes institutions, hotels and camps. <sup>3</sup> Figures for Canada are exclusive of 25,100 persons and 4,939 families located in the Yukon and Northwest Territories; comparable figures for dwellings are not available.

**Birthplace.**—Of the 14,009,429 people in Canada on June 1, 1951 11,949,518 were born in Canada, 912,482 in the United Kingdom, 20,567 in other Commonwealth countries, 801,618 in Europe, 282,010 in the United States, 37,145 in Asia and 6,089 elsewhere.



**Religious Denominations.**—Religious denominations in Canada are many and diverse. However, in 1951 more than 92 p.c. of the population belonged or adhered to one of the seven numerically largest religious denominations as follows:—

	No.		No.
Roman Catholic.....	6,069,496	Baptist.....	519,585
United Church of Canada.....	2,867,271	Lutheran.....	444,923
Anglican Church of Canada....	2,060,720	Jewish.....	204,836
Presbyterian.....	781,747	Other.....	1,060,851

**The Indians and Eskimos**

The Indians and Eskimos of Canada, descendants of the races that inhabited this country before the European settlers came, are of special concern to the Federal Government—the Indians since the early days of colonization when it was no longer possible for them to follow their traditional way of life, and the Eskimos in comparatively recent years as civilization has reached them in their northern habitat.

**Indians.**—There are in Canada, according to the 1951 Census, 155,874 persons of Indian origin, that is, persons with a paternal ancestor of Indian race. However, many of these have long been assimilated into the white population and have lost their identity as Indians. The number of persons considered as Indian under Indian legislation was placed at 151,558 in 1955. They are divided into about 600 bands and live on 2,223 reserves set aside for their use and benefit. Their welfare is the responsibility of the Indian Affairs Branch of the Department of Citizenship and Immigration.

The Federal Government demonstrated its confidence in the abilities of Canadian Indians by passing, in 1951, a new Indian Act which gave them more responsibility in handling their own affairs. Indians today are building their own homes, repairing the roads on their reserves, or joining forces in some other worthwhile undertakings. The band councils, most of them

*Some of the twenty-six Indian delegates selected by their respective band councils to attend a meeting called at Ottawa in January 1956 by the Superintendent General of Indian Affairs to discuss the administration of the Indian Act and give their views on suggested amendments thereto.*



chosen in democratic elections set up under the provisions of the new Act, pass by-laws for the good of their communities and operate as efficiently as do most town councils, using band funds wisely and well. In the year ended Mar. 31, 1955, Indians built 837 houses and repaired 2,259 others. They added 14,746 acres to the amount of land under cultivation in the Prairie Provinces and increased the Indian Trust Fund by \$983,899.

Indians everywhere are becoming more interested in good education and training as aids to better living. They are moving out of their hereditary occupations and proving their abilities in competition with others in modern agriculture, in industry, and in a variety of professions. Where Indians attend provincial schools, they have no trouble in keeping pace with the other students. In the 1954-55 academic year, 1,853 Indian students attended secondary schools, colleges and special courses; 115 of these pupils were taking trades courses, 63 commercial courses, 28 nurse-training courses and nine were studying at teacher-training schools.

Adults are learning also. During 1955, the Welfare Division of the Indian Affairs Branch continued its Indian Social Leaders' Training Program, in which representatives of Indian communities are enabled to study social welfare and community leadership. There are indications that this program is resulting in stimulation of organized group activity on the reserves directed toward the betterment of social conditions of Indian people. Representatives of all except the Maritime regions attended study courses held during the year. Active Homemakers' Clubs, of which there were 169 in 1954, were responsible for many home improvements on the reserves and took leadership in sewing, welfare and social activities.

In 1954, 789 Indians were enfranchised, that is, they elected to be considered on a full citizenship basis as are other Canadian citizens.

**Eskimos.**—Canada's most northerly people, the Eskimos, are believed to have been the last of the prehistoric immigrants from eastern Asia to North America. At the 1951 Census they numbered more than 9,600 and their population is increasing. They began to spread over the Eastern Arctic about



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*The helicopter from the "C.D. Howe", a Federal Government supply and inspection ship which makes an annual tour of the Eastern Arctic, is of great interest to the residents of Arctic Bay.*

2,000 years ago. Because their culture was based largely on the hunting of sea mammals, the greater part of the population lived close to the coasts. Even today there are few Eskimos in the interior of northern Canada, and all of them live north of the tree line. With the coming of the whalers and the search for the Northwest Passage, the coastal Eskimos came in contact with European civilization and their way of life began to change. The gun replaced the bow, and quantities of Arctic fox pelts, a fur that had been of little value to the Eskimo, were demanded by fashion centres in Europe. Thus the Eskimo became a trapper and the white fox assumed a place of importance in his economy.

Today the Eskimo is still in a period of transition. Depressed fur prices since the Second World War have brought hardship to many Eskimos who were, and still are, dependent on fur for the major portion of their incomes. To some extent family allowance and old age assistance have helped to alleviate this condition, and the Department of Northern Affairs and National Resources, which is charged with general administration of Arctic and Eskimo affairs, is making a continuing study of the situation, with a view to meeting the problems created by changing conditions. In this it has the co-operation of other government departments and of agencies directly concerned with Arctic affairs.



Because the people have built up little immunity to certain diseases, Eskimo health is a major problem. When treatment is required, the Eskimos are moved to hospitals in various parts of Canada. In 1955 more than 700 Eskimos, most of whom were being treated for tuberculosis, were in hospitals in the south. Extended periods of hospitalization in a vastly different environment create social problems which are being minimized as much as possible. Rehabilitation centres are being established in the north so that patients may be returned as quickly as possible to convalesce there.

The problem of education for people in the more remote areas of the north is also being vigorously studied. Eskimo children in many areas are receiving education and training in new schools with modern facilities, some of which double as places where their parents may receive some types of instruction and vocational training. A number of Eskimos receive vocational training in the south and return north to put their newly acquired skills to use.

Means of broadening the precarious "one-crop" Eskimo economy are being studied and implemented. Some projects will capitalize on native skills; others will involve the development of skills that are completely unfamiliar to the Eskimo. In 1955 Eskimos were employed in the relocation of Aklavik townsite, a long-term project, and received on-the-job training as carpenters and mechanics. Some were also working on defence installations at such places as Churchill and Frobisher Bay, and others were employed by mining companies. Several herds of reindeer run on ranges east of Aklavik, and Eskimo herdsmen are in charge of them. In other regions of the Arctic the Department has encouraged and assisted in the development of small local industries and is studying several others which could be of regional benefit. Eskimo carvings, which have recently received world-wide renown, represent a small but increasing portion of the income of Eskimos in the Eastern Arctic. A fund makes loans available to individual Eskimos or to groups for use on approved projects that will strengthen their economy.

## ***Vital Statistics***

Since 1921, when national vital statistics were first collected, the Canadian population has increased from less than 9,000,000 to over 15,000,000. Although immigration has contributed a small part to this increase, the most significant factor has been the high rate of natural increase. This in turn has been primarily accounted for by the high level of the birth rate, at present the highest recorded for a major industrial nation. In the same period, Canada has made tremendous strides in reducing the death rate in general and the rate of maternal mortality in particular. Canada's low death rate is second only to that of the Netherlands and her rate of maternal mortality second only to the United States. Only half a dozen countries have lower rates of neo-natal mortality. A marked contrast, however, appears in regard to infant mortality in which Canada falls to twelfth place, though recent improvement in this respect has been impressive. For example, Sweden with the lowest rate of infant mortality had a reduction in that rate from 61.4

per 1,000 live births between 1920-24 to the current level of 18, while Canada's rate during the same period dropped from 104.3 to 32.

**Births.**—The birth rate has been the most dynamic element in determining rate of natural increase. From 29 per 1,000 population in 1921, the rate declined steadily until it was below 21 in 1937. It rose to a plateau of 24 during the war years and to peaks of 28.9 in 1947 and 28.7 in 1954. The 1954 birth rates in Ontario, Alberta and British Columbia were the highest on record since 1921 while Saskatchewan recorded its highest rate since 1922. New Brunswick was the only province with a lower rate in 1954 and a general decline since 1947. Newfoundland's rate (34.3) was the highest among the provinces with Alberta in second place (32.3); Prince Edward Island had the lowest rate (25.9).

**Marriages.**—The root of the wide increase in births has been the larger number of married couples rather than increase in the average size of family. Between 1941 and 1951 the proportion of married women rose from 38 p.c. to 51 p.c. in the age group 20-24, from 66 p.c. to 79 p.c. in the age group 25-29, and from 76 p.c. to 84 p.c. in the age group 30-34. While much of this difference may be attributed to postponement of marriage during the depression period of the early 1930's there is evidence that a higher proportion of women are now marrying and at a somewhat earlier age than formerly. The marriage rate has remained at a high level since 1940 and reached a post-war peak of 10.9 in 1946 thereafter declining to 8.5 in 1954. The recent decline is mainly a result of fewer unmarried females in the marriageable age groups.

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**Deaths.**—In 1954 Canada's crude death rate at 8.2 was the lowest on record, representing the eleventh consecutive annual decrease from the rate of 10.1 in 1943 and a decline of almost 20 p.c. in a little over a decade. The 1954 drop resulted from a decline in total deaths to 124,520 from the record high of 127,381 in 1953. There were corresponding drops in rates from 1953 in all provinces except Newfoundland and Prince Edward Island. Provincial rates varied from 7.2 in Saskatchewan and Alberta to 9.8 in British Columbia which, of all provinces, had the highest proportion of aged persons.

Tremendous reductions have taken place in the mortality pattern since the early 1920's, with the most important decreases in the childhood and early adult ages. In 1926, over 19 p.c. of all male deaths were of persons five to 45 years of age; in 1954 these accounted for less than 11 p.c. of total deaths. The reduction in mortality among females in this age group from 22 p.c. to approximately 9 p.c. is equally remarkable. Death rates for males up to age 45 have been roughly halved during the past 25 years and those for females in the same ages have been reduced as much as three to four times.

These reductions in the mortality rates in early and middle years of life have had the effect of increasing the number of people in the older age groups and of raising the average age of the population as a whole. Consequently a much larger proportion of deaths is now occurring in the older age groups. Further, the reductions in rates will eventually raise the average age at death. In 1921 the average age at death of males was 39.0 years and of females 41.1 years; by 1954 it had been advanced to 57.3 and 60.0, respectively.

Despite reductions in infant mortality over the past thirty years, more deaths still occur in the first year of life than in any other single year. Of the 107,000 deaths occurring in 1926, 31,000 or almost 30 p.c. were of children under five years of age and three-quarters of those were of children under one year of age. Of approximately 124,500 deaths in 1954, over 16,000 or nearly 13 p.c. were of children under five years of age and more than five-sixths of those were under one year. Most of the reduction has taken place among children over the age of one month but there has been a notable decrease in all childhood ages up to five years.

The increased life span has reflected the remarkable success that has attended the attack by health authorities on the infective and contagious diseases which at one time constituted such a great hazard in the early and young adult years of life. Diphtheria, for example, has been almost wiped out and tuberculosis has been greatly reduced. On the other hand, the aging of the population has increased the proportion of deaths from certain causes that affect older people; cancer and the diseases of the cardio-vascular-renal systems now account for a substantially larger proportion of all deaths. At present about 80 p.c. of all deaths are within the following groups: diseases of the heart and arteries, cancer, accidents, diseases of early infancy, the respiratory diseases—tuberculosis, pneumonia and influenza—and nephritis.

In general, the healthy conditions of Canadian life may be indicated by the fact that, according to the 1951 Canadian Life Tables, the expectation of life at birth is over 66 years for males and over 70 for females while the infant mortality rate is now only 32 per 1,000 population, and fewer than one mother dies per 1,000 live births.



## Births, Marriages and Deaths, 1926-54

(Exclusive of the Yukon and Northwest Territories; Newfoundland included from 1949)

Year	Births		Marriages		Deaths		Maternal Deaths	
	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>2</sup>
Av. 1926-30...	236,521	24.1	71,886	7.3	108,925	11.1	1,339	5.7
Av. 1931-35...	228,352	21.5	68,594	6.5	103,602	9.8	1,153	5.0
Av. 1936-40...	228,767	20.5	96,824	8.7	109,514	9.8	1,043	4.6
Av. 1941-45...	276,832	23.5	113,936	9.7	115,144	9.8	791	2.9
Av. 1946-50...	354,869	27.4	126,687	9.8	119,975	9.3	523	1.5
1951.....	380,101	27.2	128,230	9.2	125,454	9.0	405	1.1
1952.....	402,527	27.9	128,301	8.9	125,950	8.7	374	0.9
1953.....	416,825	28.2	130,837	8.9	127,381	8.6	324	0.8
1954.....	435,142	28.7	128,385	8.5	124,520	8.2	312	0.7

Per 1,000 population.

<sup>2</sup> Per 1,000 live births.

## Births, Marriages and Deaths, by Province, 1954

(Exclusive of the Yukon and Northwest Territories)

Province	Births		Marriages		Deaths		Maternal Deaths	
	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>2</sup>
Nfld.....	13,653	34.3	2,952	7.4	2,916	7.3	22	1.6
P.E.I.....	2,724	25.9	605	5.8	966	9.2	2	0.7
N.S.....	18,909	28.1	5,265	7.8	5,692	8.5	10	0.5
N.B.....	16,649	30.4	4,278	7.8	4,286	7.8	12	0.7
Que.....	133,178	30.4	35,516	8.1	33,169	7.6	140	1.1
Ont.....	136,261	27.0	45,028	8.9	44,515	8.8	69	0.5
Man.....	22,248	26.9	6,837	8.3	6,719	8.1	11	0.5
Sask.....	24,981	28.5	6,953	7.9	6,323	7.2	22	0.9
Alta.....	33,593	32.3	9,960	9.6	7,520	7.2	11	0.3
B.C.....	32,946	26.0	10,991	8.7	12,414	9.8	13	0.4
<b>Canada.....</b>	<b>435,142</b>	<b>28.7</b>	<b>128,385</b>	<b>8.5</b>	<b>124,520</b>	<b>8.2</b>	<b>312</b>	<b>0.7</b>

<sup>1</sup> Per 1,000 population.

<sup>2</sup> Per 1,000 live births.

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*The Peace Tower, Parliament Buildings, Ottawa.*

# The Government

CANADA is unique in the Western Hemisphere in being a kingdom among republics. As a sovereign nation of ten provinces and two territories, it is likewise unique in that it is founded on British principles of parliamentary government which, while combining monarchical forms with democratic practices, have been adapted to the needs of half a continent through the application of the federal principle.

The most distinctive feature of this federalism is the distribution of legislative powers between the Parliament of Canada and the ten provincial legislatures. Generally speaking, all matters of national concern, such as defence, external affairs, trade and commerce, banking, the raising of money by any mode of taxation, criminal law and transportation, are under the jurisdiction of Parliament, while the provincial legislatures have control over such items as property and civil rights, education, hospitals, welfare institutions, municipal institutions, public lands, and direct taxation within the provinces for provincial purposes.

## • The Parliamentary System

That the Canadian Constitution is founded on the British parliamentary system is evident in the fact that Parliament embraces the Queen, the Senate and the House of Commons; that the executive and legislative powers are in close identification through the control of administration by leaders of the parliamentary majority; and that the judiciary is virtually independent of control by either the executive or legislative branches of government. The Crown is the unifying symbol of all three spheres of power.

**The Nation.**—Though Her Majesty Queen Elizabeth II is “Queen of Canada”, her personal participation in the function of the Crown for Canada is necessarily reserved to such rare occasions as a royal visit or the periodic appointment of a personal representative on the advice of her Canadian Ministers. The Queen reigns but does not rule; rather, she symbolizes the continuity of the ancient traditions of the British constitutional monarchy and indeed of the law and custom of the Canadian Constitution.

The personal representative of the Queen in Canada is the Governor General, appointed by Her Majesty entirely on the advice of the Prime Minister of Canada and usually for a term of five years. He exercises such formal authority as summoning, proroguing and dissolving Parliament and assenting to Bills in the Queen’s name. Canada’s present Governor General, the Right Honourable Vincent Massey, C.H., is the first Canadian to hold this high office. He was appointed on Jan. 24 and assumed office on Feb. 28, 1952.

The active Canadian executive authority for controlling the exercise of the powers of the Crown resides in the Cabinet or Ministry composed of Members of Parliament, who hold office so long as they possess the confidence of the elected representatives of the people in Parliament.

A new House of Commons is elected at least once every five years under an adult franchise conferred upon Canadian citizens or British subjects, male



and female, who have been resident in Canada for twelve months prior to polling day. A readjustment of representation follows each decennial Census of Canada. Provincial representation is now as follows:—

Newfoundland.....	7	Alberta.....	17
Prince Edward Island.....	4	British Columbia.....	22
Nova Scotia.....	12	Yukon Territory.....	1
New Brunswick.....	10	Mackenzie District, Northwest Territories.....	1
Quebec.....	75		
Ontario.....	85		
Manitoba.....	14		
Saskatchewan.....	17		
		TOTAL.....	265

The leader of the national party that has won a majority of the seats in a newly elected House of Commons forms a Ministry or Cabinet, the members of which are appointed by the Governor General but selected by the Prime Minister from among his party colleagues in such manner as to ensure as far as possible representation of the several regions of the country and its principal cultural and religious and social interests. The Cabinet is responsible for determining all important policies and securing the passage of such legislation, financial measures and administrative provisions as their supporters may approve. Members of the Cabinet as at Jan. 1, 1956, and the portfolios held by them were as follows, listed according to precedence:—

Rt. Hon. Louis Stephen St. Laurent.....	Prime Minister and President of the Queen's Privy Council for Canada.
Rt. Hon. Clarence Decatur Howe.....	Minister of Trade and Commerce and Minister of Defence Production.
Rt. Hon. James Garfield Gardiner.....	Minister of Agriculture.
Hon. Paul Joseph James Martin.....	Minister of National Health and Welfare.
Hon. James Joseph McCann.....	Minister of National Revenue.
Hon. Milton Fowler Gregg.....	Minister of Labour.
Hon. Lester Bowles Pearson.....	Secretary of State for External Affairs.
Hon. Stuart Sinclair Garson.....	Minister of Justice and Attorney General.
Hon. Robert Henry Winters.....	Minister of Public Works.
Hon. Hugues Lapointe.....	Minister of Veterans Affairs and Postmaster General.
Hon. Walter Edward Harris.....	Minister of Finance and Receiver General.
Hon. George Prudham.....	Minister of Mines and Technical Surveys.
Hon. James Sinclair.....	Minister of Fisheries.
Hon. Ralph Osborne Campney.....	Minister of National Defence.
Hon. William Ross Macdonald.....	Solicitor General of Canada and Leader of the Government in the Senate.
Hon. John Whitney Pickersgill.....	Minister of Citizenship and Immigration.
Hon. Jean Lesage.....	Minister of Northern Affairs and National Resources.
Hon. George Carlyle Marler.....	Minister of Transport.
Hon. Roch Pinard.....	Secretary of State of Canada.

The Senate or Upper House of the Parliament of Canada shares with the House of Commons the responsibility for the enactment of all federal legislation in that Bills must pass both Houses before receiving Royal Assent through the Governor General. Yet the influence of the Senate on legislation is immeasurably less than that of the Commons in which most public Bills are introduced by the Ministry and to which the latter is responsible. The most striking evidence of this fact is that any Bill for the expenditure of any public money or the imposition of any tax must originate in the *elected* House, by custom, through the Cabinet. None the less, the Senate has the power to perform a valuable service to the nation in amending and delaying the passage of measures that might result from sudden shifts in public opinion or party strength.

Canadian Senators are summoned for life by the Governor General, on the nomination of the Prime Minister, with equality of representation for



*His Excellency the Right Honourable Vincent Massey, Governor General of Canada, and his guests, Lord and Lady Alexander, stroll over familiar terrain—the grounds of Government House. Lord Alexander is Mr. Massey's immediate predecessor in the role of first citizen of the land.*

four regional divisions. The representation in the Senate by divisions and provinces is as follows:—

Ontario.....	24	Western Provinces.....	24
Quebec.....	24	Manitoba.....	6
Atlantic Provinces.....	30	British Columbia.....	6
Nova Scotia.....	10	Alberta.....	6
New Brunswick.....	10	Saskatchewan.....	6
Prince Edward Island.....	4		
Newfoundland.....	6	TOTAL.....	102

Yukon Territory and the Northwest Territories lack representation at present in the Senate.

While the Ministers of the Crown carry the political responsibilities of their respective departments, the Federal Civil Service forms the staffs of the twenty departments and of various boards, commissions, bureaux and other agencies of the Government. The day-to-day administration of a department is handled by a permanent head, usually known as Deputy Minister. The majority of the civil servants are recruited, classified and promoted by the Civil Service Commission of Canada.

**The Provinces.**—Similar political institutions and constitutional usages operate in the governments of the ten provinces as in that of the nation as a



*Canada's top government officials, the Prime Minister and the Premiers of the ten provinces gathered at Ottawa to discuss topics of both federal and provincial interest. Left to right are: T. C. Douglas (Sask.), A. W. Matheson (P.E.I.), D. L. Campbell (Man.), H. D. Hicks (N.S.), L. M. Frost (Ont.), L. S. St. Laurent (Prime Minister of Canada), M. L. Duplessis (Que.), H. J. Flemming (N.B.), W. A. C. Bennett (B.C.), E. C. Manning (Alta.), and J. R. Smallwood (Nfld.).*

whole. In each province the Queen is represented by a Lieutenant-Governor appointed by the Governor General in Council, usually for a term of five years. The powers of the Lieutenant-Governor in the provincial sphere are essentially the same as those of the Governor General in the federal sphere.

The Legislature of each of the provinces comprises, in addition to the Lieutenant-Governor, an elected Legislative Assembly and, for Quebec only, a Legislative Council of 24 members appointed for life by the Lieutenant-Governor in Council. The franchise in provincial elections is granted generally speaking, to every adult 21 years of age or over, although in Saskatchewan, Alberta and British Columbia the age is 18, 19 and 21 respectively. The conventions of Cabinet government operate in the Legislative Assembly of each of the provinces as in the House of Commons at Ottawa.

**The Territories.**—The vast northern and sparsely populated regions of Canada lying outside the ten provinces and comprising Yukon Territory and the Northwest Territories have attained both elected representation in the House of Commons and a measure of local self-government. The local government of Yukon Territory is composed of a chief executive, styled Commissioner, appointed by the Federal Government, and a locally elected Legislative Council of five members. The government of the Northwest Territories is vested in a Commissioner (who is the Deputy Minister of the Department of Northern Affairs and National Resources) assisted by a Council of nine members of whom four are elected by popular franchise in the Territories and five are appointed by the Federal Government from among federal officials at Ottawa.



**Local Government.**—As local government at the municipal level falls under the jurisdiction of the provinces, there are ten distinct systems of municipal government in Canada, as well as many variations within each system. The variations are attributable to differences in historical development and in area and population density of the 4,220 incorporated municipalities. Possessing the power exclusively to make laws respecting municipal institutions, the provincial legislature of each province has divided its territory into varying geographical areas known generally as municipalities and more particularly as counties, cities, towns, villages, townships, rural municipalities, or municipal districts. Municipalities are incorporated by provincial legislation and have various powers and responsibilities suited to their classification. A municipality is governed by an elected council whose head may be called the mayor, reeve, warden or overseer, and the other citizens who are its members may be known as controllers, aldermen or councillors.

The responsibilities of the municipalities are generally those most closely associated with the citizen's everyday life, his well-being and his protection. To maintain these services, the municipality is empowered to place substantial tax levies on the citizen's property.

**The Judiciary.**—The Canadian judiciary interprets the law and administers justice. The provinces are authorized to administer justice in the territories under their jurisdiction, including the organization of civil and criminal courts and the establishment of procedure in civil matters in those courts. Legislation concerning criminal law and the procedure in criminal matters is under the jurisdiction of the Parliament of Canada.

Judges of the superior, district and county courts in each province, except those of the courts of probate in Nova Scotia and New Brunswick, are appointed by the Governor General in Council and their salaries, allowances and pensions are fixed and paid by the Parliament of Canada.

The Supreme Court of Canada is the court of final appeal in Canada, and exercises general appellate jurisdiction throughout the nation in civil and criminal cases. The jurisdiction of the Exchequer Court extends to cases

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*His Excellency the Governor General of Canada reading the Speech from the Throne in the Senate Chamber at the opening of Parliament on Jan. 10, 1956. Senators and guests occupy the Chamber while Members of the House of Commons are called to the Bar just inside the entrance. Directly in front of His Excellency sit the Judges of the Supreme Court of Canada.*

embracing claims made by or against the Crown in the right of Canada. The Chief Justice of Canada and the puisne judges of the Supreme and Exchequer Courts are appointed by the Governor General in Council.

## • **Public Finance**

The British North America Act of 1867 divided Canadian legislative and therefore financial responsibility between the Parliament of Canada and the provincial legislatures. All those matters not specifically assigned to the provinces and of national concern were placed under the jurisdiction of Parliament, while matters of private and local interest within the province were to be provincially administered. The Provinces in turn delegated varying powers of government and financial responsibility to municipal authorities, depending on requirements arising out of geographical and population differences.

This basic division of financial responsibility has changed little through the years, but the degree of responsibility has changed much. Greater

aggregations of population with an increasing divergency of economy and a rising standard of living have demanded an increasing complexity of services. There is a definite tendency for people, either individually or collectively, to expect and to depend upon government service in almost every field, from the provision of local utilities, highways, hospitals, education and police protection to such large-scale national services as housing assistance, unemployment insurance, defence, research, radio and television, air and rail transport and so on. Also in recent years many social problems have come to be regarded as partly or wholly federal matters, necessitating a great amount of co-operative activity between federal and provincial governments, financially as well as administratively.

All these services together with the general rise in prices have greatly added to the expenditures of government at all three levels and therefore to the need for the raising of more and more revenue through direct and indirect taxation. The continual increase in combined revenues and expenditures during the war and post-war periods is shown in the following table.

### Government of Canada, Provincial and Municipal Revenue and Expenditure, 1939-53

NOTE.—Figures are for fiscal years ended nearest to Dec. 31. Inter-governmental transfers such as subsidies paid by the Government of Canada to the provinces are excluded.

Year	Government of Canada	Provincial and Municipal			Grand Total
		Provincial	Municipal	Total	
	REVENUE				
	\$'000	\$'000	\$'000	\$'000	\$'000
1939.....	480,027	236,223	316,964	553,187	1,033,214
1941.....	1,389,433	301,842	331,206	633,048	2,022,481
1943.....	2,522,414	250,646	340,690	591,336	3,113,750
1945.....	2,694,116	316,724	356,289 <sup>1</sup>	673,013	3,367,129
1947.....	2,663,310	533,857	413,351 <sup>1</sup>	947,208	3,610,518
1949 <sup>2</sup> .....	2,411,218	730,842	511,835 <sup>1</sup>	1,242,677	3,653,895
1950.....	2,905,578	827,286	560,437 <sup>1</sup>	1,387,723	4,293,301
1951.....	3,739,353	945,408	650,806	1,596,214	5,335,567
1952.....	4,124,876	921,034	739,931	1,660,965	5,785,841
1953.....	4,143,032	991,957	804,469	1,796,426	5,939,458
	EXPENDITURE				
	\$'000	\$'000	\$'000	\$'000	\$'000
1939.....	571,198	354,883	304,580	659,463	1,230,661
1941.....	1,718,787	311,260	292,517	603,777	2,322,564
1943.....	4,907,475	300,997	300,579	601,576	5,509,051
1945.....	4,652,841	370,875	334,261 <sup>1</sup>	705,136	5,357,977
1947.....	1,762,472	625,539	454,477 <sup>1</sup>	1,080,016	2,842,488
1949 <sup>2</sup> .....	2,010,587	873,929	619,106 <sup>1</sup>	1,493,035	3,503,622
1950.....	2,494,731	923,740	682,146 <sup>1</sup>	1,605,886	4,100,617
1951.....	3,283,926	1,039,370	772,817	1,812,187	5,096,113
1952.....	3,685,333	1,169,688	898,562	2,068,250	5,753,583
1953.....	3,700,578	1,215,527	991,720	2,207,247	5,907,825

<sup>1</sup>Figure for the Province of Quebec is estimated.

<sup>2</sup>Newfoundland included from 1949.

The above figures are on a net basis. Offset against expenditure are such revenue items as grants-in-aid and shared-cost contributions from other governments, interest revenue, institutional revenue, and certain sales of commodities and services. It should also be noted that expenditure excludes debt retirement but includes expenditure financed from capital borrowings.



## Finances of the Federal Government

Revenue of the Government of Canada reached an all-time record in the year ended Mar. 31, 1954, and the highest expenditures were made in the year ended Mar. 31, 1944, during World War II. The net debt reached a peak of \$13,421,000,000 at Mar. 31, 1946, but budgetary surpluses for each of the next eight years reduced the figure to \$11,116,000,000 by Mar. 31, 1954. A deficit of \$152,000,000 in 1954-55, less adjustments of about \$5,000,000 in respect of previous years' transactions, resulted in an increase for the year of \$147,000,000 in the net debt.

Inflation in the general price level through the years has reduced the significance of the size of the Government of Canada debt, and the great expansion of the Canadian economy allows the country to support the present debt on a sound financial basis. On Mar. 31, 1939, the net debt amounted to 60·2 p.c. of the gross national product; by 1946 this had risen to 113·3 p.c., but by Mar. 31, 1954, the net debt amounted to only 46·8 p.c. of the national product.

### Finances of the Federal Government, Years Ended Mar. 31, 1868-1955

NOTE.—These figures are derived from the *Public Accounts of Canada* and differ from those in the preceding table. Revenue and expenditure in this table are on a gross basis and net debt here represents the excess of gross debt over net active assets.

Year	Total Revenue	Per Capita Revenue <sup>1</sup>	Total Expenditure	Per Capita Expenditure <sup>1</sup>	Net Debt at End of Year	Net Debt Per Capita <sup>2</sup>
	\$	\$	\$	\$	\$	\$
1868.....	13,687,928	3·95	13,716,422	3·96	75,757,135	21·58
1871.....	19,375,037	5·34	18,871,812	5·21	77,706,518	21·06
1881.....	29,635,298	6·96	32,579,489	7·66	155,395,780	35·93
1891.....	38,579,311	8·07	38,855,130	8·13	237,809,031	49·21
1901.....	52,516,333	9·91	55,502,530	10·47	268,480,004	49·99
1911.....	117,884,328	16·87	121,657,834	17·40	340,042,052	47·18
1921.....	436,888,930	51·06	528,899,290	61·82	2,340,878,984	266·37
1931.....	357,720,435	35·04	441,568,413	43·26	2,261,611,937	217·97
1941.....	872,169,645	76·63	1,249,601,446	109·80	3,648,691,449	317·08
1943.....	2,249,496,177	193·02	4,387,124,118	376·45	6,182,849,101	524·19
1945.....	2,687,334,799	224·96	5,245,611,924	439·11	11,298,362,018	935·91
1947.....	3,007,876,313	244·70	2,634,227,412	214·30	13,047,756,548	1,039·58
1949.....	2,771,395,075	216·13	2,175,892,332	169·69	11,776,134,152	875·74
1950.....	2,580,140,615	191·87	2,448,615,662	182·09	11,644,609,199	849·23
1951.....	3,112,535,948	226·99	2,901,241,698	211·58	11,433,314,948	816·14
1952.....	3,980,908,652	284·17	3,732,875,250	266·46	11,185,281,546	775·14
1953.....	4,360,822,789	302·21	4,337,275,512	300·57	11,161,734,269	755·14
1954.....	4,396,319,583	297·43	4,350,522,378	294·33	11,115,937,064	731·55
1955.....	4,123,513,300	271·37	4,275,362,888	281·37	11,263,080,154	721·95

<sup>1</sup> Based on estimated population as at June 1 of the immediately preceding year.

<sup>2</sup> Based on estimated population as at June 1 of same year.

The outstanding unmatured funded debt (including treasury bills) of the Government of Canada at Mar. 31, 1955, amounted to \$14,496,441,853, a decrease of \$79,726,397 from the previous year. The portion of the unmatured funded debt payable in Canada was 97·2 p.c., the portion payable in London amounted to 0·4 p.c. and in New York 2·4 p.c.

The following table shows the sources of federal revenue and the expenditures of the different departments of government for the years ended Mar. 31, 1953 to 1955.

# Revenue and Expenditure of the Federal Government, Years Ended Mar. 31, 1953-55

Item	1953	1954	1955
	\$	\$	\$
<b>Revenue</b>			
<b>Tax Revenue—</b>			
Income tax.....	2,473,790,089	2,432,603,505	2,265,297,267
<i>Personal.....</i>	<i>1,180,025,562</i>	<i>1,187,655,616</i>	<i>1,183,447,835</i>
<i>Corporation.....</i>	<i>1,240,090,150</i>	<i>1,191,186,598</i>	<i>1,020,585,823</i>
<i>On interest, etc., going abroad.....</i>	<i>53,674,377</i>	<i>53,761,291</i>	<i>61,263,609</i>
Excise tax.....	841,890,103	883,356,506	824,205,245
<i>Sales tax.....</i>	<i>566,233,167</i>	<i>587,331,544</i>	<i>572,214,713</i>
<i>Other.....</i>	<i>275,656,936</i>	<i>296,024,962</i>	<i>251,990,532</i>
Excise duties.....	241,360,370	226,732,460	226,458,438
Customs import duties.....	389,442,109	407,312,241	397,228,330
Succession duties.....	38,070,530	39,137,594	44,768,028
Other taxes.....	13,039,736	14,442,147	15,480,772
<b>Totals, Tax Revenue.....</b>	<b>3,997,592,937</b>	<b>4,003,584,453</b>	<b>3,773,438,080</b>
Non-tax revenue.....	280,134,664	318,186,825	321,236,446
Special receipts and credits.....	83,095,188	74,548,305	28,838,774
<b>Totals, Revenue.....</b>	<b>4,360,822,789</b>	<b>4,396,319,583</b>	<b>4,123,513,300</b>
Tax credited to Old Age Security Fund, not included above—			
2 p.c. sales tax.....	141,558,292	146,832,886	143,053,678
2 p.c. personal income tax.....	45,250,000	90,700,000	100,900,000
2 p.c. corporation income tax.....	36,850,000	55,600,000	46,000,000
<b>Expenditure</b>			
Agriculture.....	106,710,890	108,361,384	81,804,056
Atomic Energy Control Board.....	12,948,027	12,700,987	14,983,927
Auditor General's Office.....	576,211	614,880	672,474
Canadian Broadcasting Corporation.....	8,235,311	24,996,275	29,236,931
Chief Electoral Officer.....	464,487	5,527,130	312,058
Citizenship and Immigration.....	23,646,348	25,481,123	27,968,175
Civil Service Commission.....	1,909,508	2,051,348	2,333,042
Defence Production.....	88,817,141	47,898,563	18,878,447
External Affairs.....	39,251,463	45,718,964	43,777,922
Finance.....	946,967,875	971,375,876	934,075,801
Fisheries.....	10,776,926	9,254,771	11,151,813
Governor General and Lieutenant-Governors.....	396,924	399,086	400,385
Insurance.....	448,619	492,239	477,088
Justice, including Penitentiaries.....	14,908,495	15,017,396	16,423,823
Labour.....	67,021,861	67,561,441	69,771,586
Legislation.....	6,157,261	5,600,210	6,654,556
Mines and Technical Surveys.....	29,658,169	38,536,620	43,747,296
National Defence.....	1,882,418,468	1,805,914,922	1,665,968,960
National Film Board.....	2,919,779	2,997,528	3,430,589
National Health and Welfare.....	406,564,698	430,533,808	496,699,592
National Research Council.....	15,395,339	15,398,844	15,700,525
National Revenue.....	47,313,178	49,937,839	55,010,594
Northern Affairs and National Resources.....	35,557,644 <sup>1</sup>	19,118,141 <sup>1</sup>	20,155,118
Post Office.....	105,553,191	113,581,752	123,611,055
Privy Council.....	3,720,571	3,732,910	3,800,361
Public Archives.....	306,714	346,910	421,302
Public Printing and Stationery.....	1,607,237	2,036,771	2,068,013
Public Works.....	81,847,470	114,956,865	130,780,634
Royal Canadian Mounted Police.....	31,141,321	33,845,572	35,549,795
Secretary of State.....	2,201,462	3,278,154	2,671,242
Trade and Commerce.....	16,502,669	16,526,422	17,494,834
Transport.....	103,905,716	118,012,795	159,241,707
Veterans Affairs.....	241,424,539	238,714,852	240,089,187
<b>Totals, Expenditure.....</b>	<b>4,337,275,512</b>	<b>4,350,522,378</b>	<b>4,275,362,888</b>

<sup>1</sup> Contributions to the provinces under the Trans-Canada Highway Act were transferred from Northern Affairs and National Resources to Public Works in 1953-54.

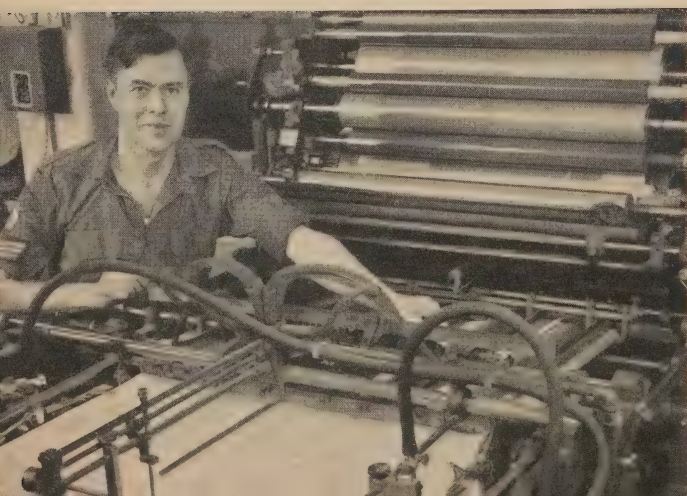
## Income Tax

The income tax has been the chief source of revenue of the Federal Government since before World War II. Rates were increased considerably and other forms of income tax were introduced to help finance the War but after hostilities ceased a succession of reductions in rates and increases in exemption allowances relieved some of the burden for the individual taxpayer. Taxes on corporation incomes were also reduced and the excess profits tax ended. However, the expansion of personal income, the growth of the labour force and the growth of industry generally in the post-war years has offset the effect of the reduction in rates and the revenue from income taxes continues to grow each year.

For personal income-tax purposes, the present exemptions from income in respect of marital status and dependants, which have been in effect since 1949, are: \$1,000 basic exemption with additional exemptions of \$1,000 for persons taxed as married and \$500 for persons 65 years of age or over; maximum exemptions for dependants of \$150 each are allowed, or \$400 if the dependant is not eligible for family allowance. The rate structure presently ranges from 18 p.c. on the first \$1,000 of taxable income to 83 p.c. on income in excess of \$400,000, including an Old Age Security Tax of 2 p.c. with a maximum of \$60.

### *Taxpayers classified by Income Group, Alternate Years, 1941-53*

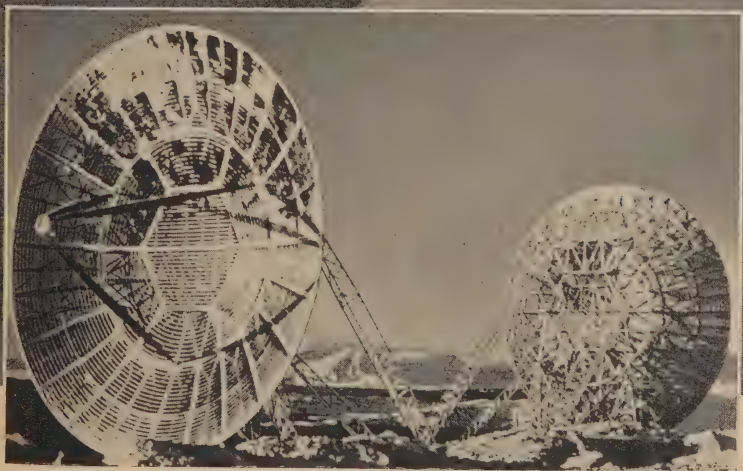
Year	Taxpayers by Income Group					Total Taxpayers	Total Tax
	Under \$2,000	\$2,000-\$2,999	\$3,000-\$4,999	\$5,000-\$9,999	\$10,000 or Over		
	No.	No.	No.	No.	No.	No.	\$'000,000
1941.....	534,337	198,252	92,047	34,325	12,523	871,484	223
1943.....	1,434,243	513,875	153,936	45,954	15,346	2,163,354	801
1945.....	1,487,984	529,202	167,269	53,242	16,549	2,254,246	642
1947.....	1,238,560	773,780	249,800	76,190	28,126	2,366,456	622
1949.....	745,520	848,960	485,130	113,570	38,790	2,231,970	501
1951.....	732,910	961,620	855,400	176,890	51,130	2,777,950	812
1953.....	756,430	991,490	1,285,000	292,140	64,470	3,389,530	1,147



*Maps required pre-  
to the construction  
Mid-Canada Line  
prepared and pro-  
Army engineer  
RCAF aerial photo  
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the most spectacular of Canada's defence construction jobs is the new and complex communications network being set up to act as a protective radar system across the top of the continent, secondary to the Distant Early Warning Line in the far north.



New communities have been scattered across the great subarctic wastes as this vital defence line takes shape and whole new sets of conditions have been faced and mastered. Operating airfields and seaplane bases along with a major air-lift are now run-of-the-mine jobs as is the work of transporting people and material—everything from lumber, cement and pre-fabricated building material to delicate electronic equipment, food and mail—by helicopter, tractor train, barge, muskeg tractor and even pack horse.

The Mid-Canada Line, one of three basic radar networks, stretches along the 55th parallel of latitude from the Peace River area in Alberta—where it hooks up with the Pinetree network running southwest across the Rockies to the West Coast—to Labrador and then turns downward along the east coast of Labrador and the Island of Newfoundland to Cape Race.

**Number of Taxpayers, Total Income Assessed and Taxable, and Tax Payable Thereon, by Province and Occupational Class, 1953**

Province or Class	Taxpayers	Total Income Assessed	Net Taxable Income	Total Tax
	No.	\$'000	\$'000	\$'000
<b>Province</b>				
Newfoundland.....	41,520	136,536	57,460	12,070
Prince Edward Island.....	7,100	20,779	8,183	1,627
Nova Scotia.....	99,070	304,538	121,222	24,925
New Brunswick.....	68,560	207,183	81,091	16,485
Quebec.....	775,560	2,617,489	1,127,131	248,805
Ontario.....	1,473,960	5,064,754	2,510,498	535,110
Manitoba.....	168,130	538,046	240,268	50,845
Saskatchewan.....	146,850	498,147	232,332	46,570
Alberta.....	228,530	769,360	370,665	77,220
British Columbia.....	360,290	1,251,185	612,740	126,015
Yukon Territory.....	3,580	12,436	7,370	1,485
Non-residents.....	16,380	46,268	28,146	6,085
<b>Totals.....</b>	<b>3,389,530</b>	<b>11,466,721</b>	<b>5,397,106</b>	<b>1,147,265</b>
<b>Class</b>				
Primary producers.....	74,390	288,542	133,870	25,985
Professionals.....	34,640	280,508	203,439	57,465
Employees.....	2,988,730	9,392,446	4,163,801	839,065
Salesmen.....	39,790	185,625	98,345	22,505
Business proprietors.....	167,250	857,181	495,143	127,645
Financial.....	71,340	397,865	269,893	68,055
Estates.....	5,220	31,418	15,715	2,845
Deceased.....	7,360	30,788	15,858	3,495
Unclassified.....	810	2,348	1,042	205

**Active Taxable Companies Reporting a Profit, by Industrial Group, 1953**

Industrial Group	Taxable Companies	Average Current Year Profit	Total Current Year Profit	Average Tax	Total Tax
	No.	\$	\$'000,000	\$	\$'000,000
Agriculture, forestry and fishing.....	573	17,452	10.0	5,933	3
Mining.....	506	288,537	146.0	132,609	67
Manufacturing.....	9,095	159,054	1,446.6	71,567	650
Construction.....	2,673	39,431	105.4	15,526	41
Transportation.....	1,671	118,253	197.6	53,561	89
Public utilities.....	134	405,224	54.3	173,134	23
Wholesale trade.....	5,699	36,164	206.1	14,617	83
Retail trade.....	6,515	27,598	179.8	11,573	75
Finance.....	4,493	51,502	231.4	20,721	93
Service.....	3,301	18,964	62.6	6,937	22
Unclassified.....	4	—	—	—	—
<b>All Companies.....</b>	<b>34,664</b>	<b>76,154</b>	<b>2,639.8</b>	<b>33,184</b>	<b>1,150</b>

Collection statistics are gathered at the time the payments are made and are thus quite up to date. However, because collections are made before the filing of income tax returns and are subject to adjustment, they cannot be directly related to the figures for taxpayers given above.

## Collections under the Income Tax Act, Years Ended Mar. 31, 1951-55

Fiscal Year	General Income Tax		Tax on Un-distributed Income	Non-resident Tax	Total Income Tax
	Individuals	Corporations			
	\$	\$	\$	\$	\$
1951.....	652,328,680	711,576,735	87,619,776	61,610,319	1,513,135,510
1952.....	975,776,320	1,118,067,202	14,612,872	55,017,014	2,163,473,408
1953.....	1,225,275,562	1,266,556,794	10,383,356	53,674,377	2,555,890,089
1954.....	1,278,355,616	1,238,015,309	8,771,289	53,761,291	2,578,903,505
1955.....	1,284,347,834	1,060,148,926	6,436,897	61,263,609	2,412,197,266

## Provincial Finance

Early in the Second World War, in order to provide revenue for heavy national expenditures and at the same time control inflationary tendencies, the Provincial Governments vacated the income and corporation tax fields in favour of the Federal Government for the duration of the War and a limited period thereafter, after agreeing to the terms of a tax-rental fee from the Federal Government. These agreements of 1942 were succeeded by Tax-Rental Agreements, 1947, which were, in turn, succeeded by Tax-Rental Agreements, 1952. Under the 1952 Agreements, all provinces except Ontario and Quebec agreed to lease their personal and corporation income taxes, special corporation taxes and succession duties to the Government of Canada in exchange for a rental fee. Ontario, which had not entered into the 1947 Agreements, also agreed to lease personal and corporation income taxes and special corporation taxes but retained the right to levy succession duties. In 1952 the nine provinces received \$303,000,000 in tax-rental fees compared with \$96,000,000 received by the eight provinces in 1951.

*The largest single item of provincial government tax revenue is paid by the motor-vehicle owner in the form of gasoline tax, which ranges from 9 cents per gallon in Manitoba to 17 cents in Newfoundland and Nova Scotia.*





The revenue received from the Federal Government as a result of the agreements together with revenue from taxes, chiefly gasoline and general sales taxes, made up about 60 p.c. of the total receipts of the provincial governments in 1953. Privileges, licences and permits derived from natural resources accounted for another 15 p.c. Almost three-quarters of provincial expenditure goes for the construction and maintenance of transportation and communication facilities, for education and for health and social welfare.

Provincial revenues and expenditures and analyses thereof are shown in the following tables.

**Net General Revenue and Expenditure of Provincial Governments,  
Fiscal Years Ended Nearest Dec. 31, 1951-53**

Province or Territory	Net General Revenue			Net General Expenditure <sup>1</sup>		
	1951	1952	1953	1951	1952	1953
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	25,183	31,734	31,641	29,995	28,881	32,800
Prince Edward Island.....	6,048	7,288	7,671	8,368	7,064	7,100
Nova Scotia.....	38,794	46,647	49,348	51,855	46,464	51,200
New Brunswick.....	40,697	46,555	49,220	44,624	44,927	47,800
Quebec.....	277,406	284,703	299,417	275,500	313,117	310,900
Ontario.....	303,842	364,507	370,897	367,726	372,019	384,200
Manitoba.....	46,073	55,456	55,822	48,717	42,023	46,700
Saskatchewan.....	74,777	91,094	98,415	77,449	80,187	85,700
Alberta.....	105,751	144,504	185,851	84,840	103,583	118,100
British Columbia.....	157,102	185,368	186,337	170,136	168,875	171,700
Yukon Territory.....	1,187	—	1,460	1,163	—	1,100
<b>Totals.....</b>	<b>1,076,860</b>	<b>1,257,856</b>	<b>1,336,079</b>	<b>1,160,373</b>	<b>1,207,140</b>	<b>1,257,800</b>

<sup>1</sup> Exclusive of debt retirement.

**Analysis of Net Revenue of Provincial Governments, Fiscal  
Years Ended Nearest Dec. 31, 1952 and 1953**

Source	1952	1953	Source	1952	1953
	\$'000	\$'000		\$'000	\$'000
Taxes.....	487,429	506,651	Non-revenue and surplus receipts.....	3,219	2,710
Federal tax-rental agreements.....	303,313	309,441	<b>Totals.....</b>	<b>1,257,856</b>	<b>1,336,079</b>
Privileges, Licences and Permits—					
Motor-vehicles.....	80,911	88,247			
Natural resources.....	154,852	194,962			
Other.....	45,324	48,040	SUMMARY OF LIQUOR CONTROL REVENUE		
Sales and services.....	18,271	20,736	(included above)—		
Fines and penalties.....	3,483	4,006	Sales tax.....	1,765	1,860
Other Governments—			Permits.....	30,850	31,830
Government of Canada			Fines and penalties...	690	780
Share of income tax on power utilities.	4,369	6,831	Profits.....	125,579	124,920
Subsidies.....	25,757	24,944	Confiscations.....	32	50
Municipalities.....	830	272	<b>TOTALS.....</b>	<b>158,916</b>	<b>159,460</b>
Government enterprises.....	129,331	128,517			
Other revenue.....	767	717			

**Analysis of Net Expenditure<sup>1</sup> of Provincial Governments, Fiscal  
Years Ended Nearest Dec. 31, 1952 and 1953**

Function	1952	1953	Function	1952	1953
	\$'000	\$'000		\$'000	\$'000
General government.....	47,628	51,620	Contributions to local governments.....	26,732	29,545
Protection of persons and property.....	67,064	76,819	Contributions to government enterprises.....	14,334	12,923
Transportation and communications.....	367,194	353,107	Other expenditures.....	5,736	6,183
Health.....	192,316	209,465	Non-expense and surplus payments.....	2,357	6,969
Social welfare.....	94,688	103,543	<b>Totals.....</b>	<b>1,320,238</b>	<b>1,339,089</b>
Recreation and cultural services.....	7,692	8,096			
Education.....	221,073	234,030	<b>Less Debt Retirement (included above)....</b>	<b>113,098</b>	<b>81,270</b>
Natural resources and primary industries.....	93,849	102,323	<b>Totals, exclusive of Debt Retirement...</b>	<b>1,207,140</b>	<b>1,257,819</b>
Trade and industrial development.....	6,955	7,144			
Local government planning and development.....	2,348	2,856			
Debt charges.....	170,272	134,466			

<sup>1</sup> Ordinary and capital.

The total debt of all provinces continued to increase in 1953. Advances in direct debt in Nova Scotia, New Brunswick, Quebec, Ontario and Saskatchewan more than offset decreases in the other provinces. All provinces except Nova Scotia, New Brunswick and Alberta recorded increases in their indirect debt.

The total gross bonded debt, exclusive of bonds assumed by the provinces, as at the fiscal year ends nearest Dec. 31, 1953, amounted to \$2,560,844,000, payable as follows: Canada only, \$1,623,245,000; London (England) only, \$9,587,000; London and Canada, \$2,974,000; New York only, \$472,973,000; New York and Canada, \$284,614,000; London, New York and Canada, \$167,451,000.

**Details of Direct and Indirect Debt of Provincial Governments,  
as at Fiscal Year Ends Nearest Dec. 31, 1952 and 1953**

Detail	1952	1953	Detail	1952	1953
	\$'000	\$'000		\$'000	\$'000
<b>Direct Debt—</b>			<b>Indirect Debt—</b>		
Bonded debt.....	2,372,798	2,562,159	Guaranteed bonds....	1,049,107	1,201,023
Less sinking funds....	423,254	445,972	Less sinking funds....	5,301	8,212
Net Bonded Debt..	1,949,544	2,116,187			
Treasury bills, long term.....	78,613	75,528	Net Guaranteed Bonds.....	1,043,806	1,192,811
Net Funded Debt..	2,028,157	2,191,715			
Treasury bills, short term.....	42,853	13,494	Guaranteed bank loans.....	18,558	20,490
Savings certificates and deposits.....	1,474	1,856	Municipal Improvement Assistance Act loans.....	3,682	3,395
Temporary loans and overdrafts.....	9,311	989	Other guarantees.....	26,078	27,053
Accounts and other payables.....	172,830	176,992	<b>Totals, Indirect Debt.....</b>	<b>1,092,124</b>	<b>1,243,749</b>
Accrued expenditures.	26,017	27,896			
<b>Totals, Direct Debt.</b>	<b>2,280,642</b>	<b>2,412,942</b>	<b>Grand Totals.....</b>	<b>3,372,766</b>	<b>3,656,691</b>

**Debt of Provincial Governments, as at Fiscal Year Ends  
Nearest Dec. 31, 1952 and 1953**

Province or Territory	Direct Debt		Indirect Debt	
	1952	1953	1952	1953
	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	14,706	14,208	33,552	36,912
Prince Edward Island.....	17,574	16,989	391	535
Nova Scotia.....	181,117	188,287	3,918	2,044
New Brunswick.....	170,681	171,293	10,509	10,348
Quebec.....	385,819	394,640	289,828	332,298
Ontario.....	847,984	976,756	717,134	778,295
Manitoba.....	154,862	154,672	393	12,355
Saskatchewan.....	173,832	180,387	705	3,571
Alberta.....	101,115	98,389	5,016	4,697
British Columbia.....	232,952	217,321	30,678	62,694
Yukon Territory.....	—	—	—	—
<b>Totals.....</b>	<b>2,280,642</b>	<b>2,412,942</b>	<b>1,092,124</b>	<b>1,243,749</b>

## ***Municipal Finance***

There were in Canada at the end of 1954, 4,220 municipalities varying greatly in size and in services provided. These municipalities are locally governed and the areas so governed may be either urban or rural. Urban municipalities are usually distinguished by the official names of city, town and village, although in Quebec villages are officially regarded as rural. The official designation is sometimes misleading—municipalities may be incorporated in the rural classification though they have become urbanized extensions of the greater metropolitan cities. A very few have rural designations but are partly urbanized, as where a mining centre has grown up within the boundary of a municipality.

Incorporated municipalities include within their boundaries only a small portion of the area of Canada but they serve most of the population. Outside lie a few school districts and in parts of municipally unincorporated



*The money allocated for education by the levels of government in 1953 amounted to about \$564,000. Education is the principal item of provincial expenditure.*



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territory some local services are provided by the provincial government concerned. A great part of the area of Canada has not sufficient density of population to warrant even these limited activities. In most provinces the municipalities levy the local taxation for school authorities but exercise little or no control over school administration or finance. In much of Quebec and Prince Edward Island and in limited areas of some other provinces, school authorities levy and collect local taxes. There is no municipal taxation for school purposes in Newfoundland, as schools are denominational and largely financed by the province.

### *Municipal Assessed Valuations, Tax Levies, Collections and Receivables, 1949-53, and by Province, 1953*

Year and Province	Valuations on which Taxes were Levied	Tax Levies	Tax Collections (Current and Arrears)	Percentage of Levies to Collections	Total Taxes Receivable and Property Acquired for Taxes
	\$'000	\$'000	\$'000	p.c.	\$'000
1949 <sup>1</sup> .....	7,232,125 <sup>2</sup>	334,138	325,109	97·3	87,423
1950 <sup>3</sup> .....	10,251,875	367,554	356,838	97·1	97,072
1951 <sup>3</sup> .....	11,849,707	569,512	410,798 <sup>1</sup>	96·5 <sup>1</sup>	128,832
1952 <sup>3</sup> .....	12,681,395	643,753	476,863 <sup>1</sup>	98·4 <sup>1</sup>	126,693
<b>1953</b>					
Newfoundland.....	—	1,942	1,938	99·8	593
Prince Edward Island.....	36,172	1,410	1,278	90·6	362
Nova Scotia.....	333,310	20,122	19,345	96·1	5,745
New Brunswick.....	407,763	17,106	15,502	90·6	5,584
Quebec.....	4,090,775	173,945	<sup>4</sup>	<sup>4</sup>	25,826
Ontario.....	5,043,591	283,133	279,738	98·8	31,171
Manitoba.....	680,339	40,670	38,465	94·6	13,433
Saskatchewan <sup>3</sup> .....	964,403	49,041	47,163	96·2	18,528
Alberta <sup>3</sup> .....	1,027,544	58,289	56,714	97·3	23,966
British Columbia.....	771,130	52,889	52,727	99·7	9,181
<b>Totals, 1953. . .</b>	<b>13,355,027</b>	<b>698,547</b>	<b>512,870</b>	<b>97·8</b>	<b>134,389</b>

<sup>1</sup> Quebec not available. <sup>2</sup> Includes cities and towns only for Quebec. <sup>3</sup> Includes information for Local Improvement Districts for Saskatchewan and Alberta. <sup>4</sup> Not available.

Estimated municipal revenue for 1953 was \$828,300,000; 69.8 p.c. was derived from taxes on real property, 13.3 p.c. from other taxes, and the remaining 16.9 p.c. from licences and permits, public utility contributions, provincial subsidies and other sources. Support of local schools currently requires the largest expenditure by municipal governments. In 1953 estimated total expenditures were \$818,400,000 and the proportion of that total spent on education was 31.8 p.c. Public welfare took 12.9 p.c., transportation 12.8 p.c. and debt charges together with provisions for debt repayment 14.9 p.c.

### *Municipal Bonded Indebtedness 1919-53, and by Province, 1952 and 1953*

Year	Gross Bonded Indebtedness	Total Sinking Funds	Province	Gross Bonded Indebtedness	
				1952	1953
	\$'000	\$'000		\$'000	\$'000
1919.....	729,715	1	Newfoundland.....	4,136	4,499
1925.....	1,015,950	1	Prince Edward Island...	4,250 <sup>2</sup>	4,526
1930.....	1,271,390	1	Nova Scotia.....	51,974	59,126
1935.....	1,372,026	267,709	New Brunswick.....	52,397	55,279
1940.....	1,244,001	259,343	Quebec.....	546,274	607,527
1945.....	965,450	168,365	Ontario.....	521,992	632,345
1950.....	1,220,345	133,587	Manitoba.....	71,995	75,165
1951.....	1,431,013	116,633	Saskatchewan.....	39,629	46,382
1952.....	1,611,184	103,274	Alberta.....	119,751	155,006
1953.....	1,844,175	92,483	British Columbia.....	198,786	204,320
			<b>Totals.....</b>	<b>1,611,184</b>	<b>1,844,175</b>

<sup>1</sup> Not available before 1934; Alberta showed net debt to 1928.

<sup>2</sup> Excludes rural schools

## • *Canada's External Relations*

The close relationships of Canada with the other members of the Commonwealth and with the United States, strong support of the United Nations, of the North Atlantic Treaty Organization, and of other constructive international organizations, and interest in the maintenance of a high level of international trade, continued to be the main factors influencing the conduct of Canada's external policy in 1955.

**NATO and Western Europe.**—In May 1955 the North Atlantic Council met in Ministerial Session at Paris to welcome the accession to the North Atlantic Treaty of the Federal Republic of Germany. At the same time both Germany and Italy became members of the Western European Union (revised Brussels Treaty of 1948). The WEU is designed to promote co-operation among Western European countries and to provide a means of controlling and limiting the armed strength of its members. This important development marked the culmination of the efforts of the Western Powers to associate the Federal Republic of Germany with the West in accordance with the terms of settlement arrived at by the 1954 London Nine-Power Conference, which was ratified by the NATO Council at Paris in October 1954. With its sovereignty fully restored, the Federal Republic of Germany is taking steps to make a significant contribution to the NATO build-up-of-forces program.

Canada continued in 1955 to support NATO with contributions of armed forces to the unified NATO commands, with end-item assistance to other NATO countries and with financial contributions to common budgets. The First Canadian Infantry Brigade, which was stationed in the Soest area of Germany, was replaced on completion of its two-year tour of duty by the Second Canadian Infantry Brigade. The Canadian air contribution of 12 jet fighter squadrons to SACEUR remained unchanged. The Royal Canadian Navy had 43 ships earmarked for the defence of the Canada-United States area and for the protection of convoys under the control of SACLANT. For 1954-55, Parliament was asked to approve an appropriation of \$257,400,000 for Mutual Aid. Out of this amount Canada's proposed share of the cost of the NATO common infrastructure program was \$11,500,000, and Canada continued to provide facilities under the NATO aircrew training program for close to 1,000 NATO trainees.

The joint construction by Canada and the United States of continental defence installations in the Canadian north involves the defence of territory expressly included in the area covered by the North Atlantic Treaty.

**The Far East.**—Canada's main preoccupation in the Far East during 1955 was its participation, together with India and Poland, in the supervision of the armistice settlement for Indochina which had been reached at the Geneva Conference in July 1954. Canadian representatives sat on each of the three International Supervisory Commissions that were established in August 1954 in Vietnam, Laos and Cambodia. Throughout 1955 there were some 135 Canadian officers and men and 35 foreign service personnel serving in Indochina on the Canadian delegations to the Commissions and on the inspection teams.

During 1955 the International Commission in Vietnam supervised the completion of the regroupment of the armed forces of the two sides, involving the transfer of the Viet Minh forces to the regroupment zone north of the military demarcation line at the 17th parallel, and the transfer of the French Union Forces to the zone south of the line. Also during the first half of the year the Commission was much preoccupied with the question of freedom of movement for the civil population.



Canada's most important contribution to NATO is its provision of facilities for the training of air and aircrew for member countries. About 1,000 trainees were in instruction in



The International Commission in Cambodia in the first half of 1955 was mainly concerned with the reintegration into the national community of the members of the ex-Khmer resistance forces. General elections took place on Sept. 11 and the Commission later declared that these completed the electoral obligations of the Cambodian Government under the Geneva settlement. As a result, the Commission was reduced in number.

In Laos, the International Commission followed closely the negotiation between the Royal Laotian Government and the Pathet Lao aimed at a political settlement as called for by the cease-fire agreement. Various military incidents occurred in the two northern provinces where the Pathet Lao forces are concentrated. The International Commission was able to assist the parties in trying to settle these incidents as well as in narrowing down their differences in the military negotiations.

The three above-mentioned Commissions have the continuing task of supervising the implementation of such provisions of the respective agreements as those restricting the import of arms and war material and those forbidding reprisals or discrimination.

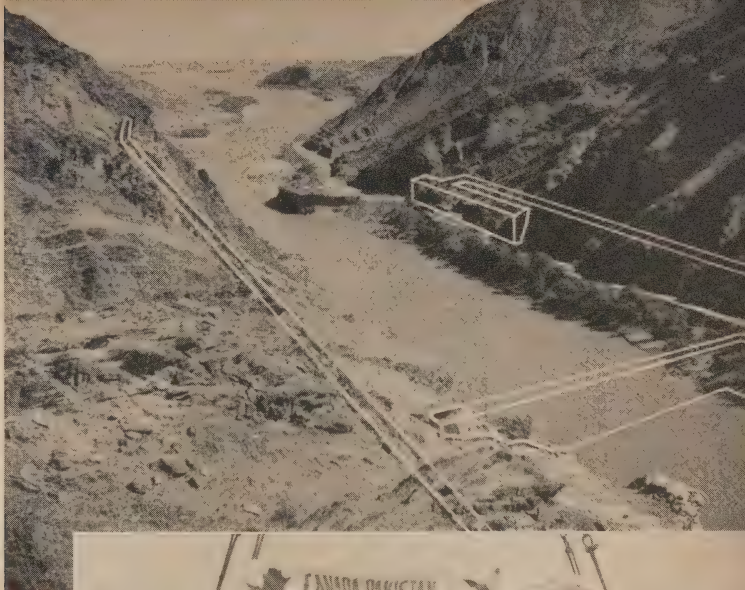
**Commonwealth Affairs.**—A meeting of Commonwealth Ministers took place in London from Jan. 31 to Feb. 7, 1955. Such periodic meetings provide the Heads of Commonwealth Governments with an opportunity to review the Commonwealth situation and to arrive at a deeper understanding of the approach of the various members to Commonwealth and world problems. The 1955 meeting convened under the shadow cast by the dispute over the Chinese off-shore islands and the consideration of Far Eastern affairs took up almost half of the plenary sessions. Concurrently with the meeting of Commonwealth Prime Ministers, the Government of Pakistan informed the other Commonwealth Governments that, under the new constitution soon to be adopted, Pakistan would become a sovereign, independent republic, while continuing its full membership in the Commonwealth.

**Relations with the United States.**—Particular problems in economic and trade relations between Canada and the United States were discussed from time to time during the year. In September 1955 the second meeting of the Joint United States-Canadian Committee on Trade and Economic Affairs took place in Ottawa. This Committee, which is composed of cabinet ministers of both countries, discussed a wide range of economic matters, including the problems created for Canada by United States measures to dispose of surplus agricultural products.

Canada and the United States continued the joint construction and extension of continental defence installations in the Canadian north. Co-operation in research and experimental projects was also a feature of Canada's special defence relations with the United States during 1955.

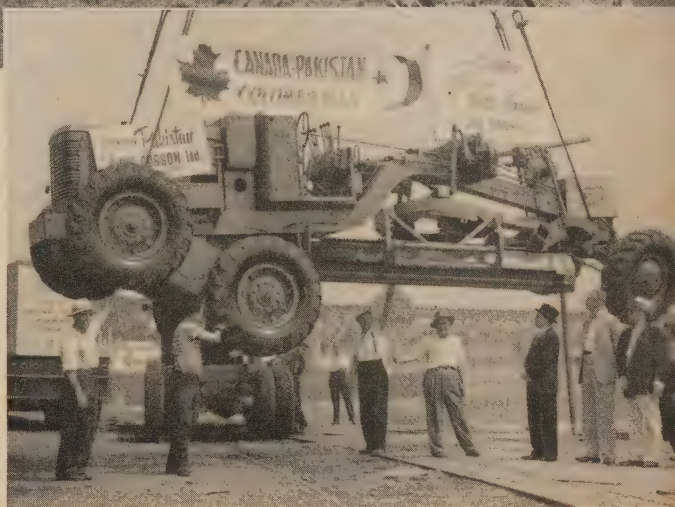
Debate on the International Rivers Improvement Act which was passed by the Parliament of Canada in June 1955 served to stress the tremendous hydro-electric potential of the Columbia River basin and also emphasized the necessity of continuing negotiations and compromise between the United States and Canada in order that divergencies of interest of the two countries may be reconciled.

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Construction of the power and seaway projects in the St. Lawrence River continued on schedule during 1955, the St. Lawrence Seaway Authority and The Hydro-Electric Power Commission of Ontario in Canada and the Power Authority of the State of New York in the United States working in close co-operation. The International Joint Commission continued to hear evidence on and to deal with problems arising out of common boundary waters along the border of the two countries.

**Latin America.**—Relations with Latin America have continued to grow in recent years. While not a member of the Organization of the American States, Canada in 1955 maintained membership in several inter-American agencies and continued to send representatives to conferences dealing with matters of common interest.

**The United Nations.**—Canada continued its active participation in the work of the United Nations. One of the main achievements of that Organization during 1955 was the success of the International Conference on the Peaceful Uses of Atomic Energy held at Geneva in August. Canada took part in this Conference and also in the renewed efforts of the United Nations Disarmament Sub-committee to solve this vital issue during private discussions held in London and New York between the representatives of Canada, France, the United Kingdom, the United States and the Soviet Union.

In the course of the Tenth Session of the General Assembly, which opened on Sept. 20, 1955, Canada was elected to the Economic and Social Council for a three-year term from Dec. 31, and announced an increase of \$300,000 in its contribution to the UN Expanded Programme of Technical Assistance to Under-developed Countries, a total of \$1,800,000 (U.S.) for the year 1956-57. Canada also signed and deposited the instrument of accession to the International Finance Corporation established by the United Nations to promote the financing of productive private enterprise in under-developed countries, and subscribed to the Corporation's capital by the purchase of stock in the amount of \$3,555,000.

One of the most important actions taken by the General Assembly and the Security Council during the Tenth Session was the approval of the membership applications of sixteen countries. This decision broke a deadlock on the important membership question which had existed since 1950, from which time no applicant had been able to obtain the necessary affirmative vote of seven members of the Security Council. The Canadian delegation took the initiative during the Tenth Session in seeking support for the admission of all outstanding applicants other than the temporarily divided countries of Korea and Vietnam. As finally adopted, the relevant resolution provided for the entry to the UN of all applicants on the "Canadian" list except Japan and Outer Mongolia. They are: Austria, Ceylon, Albania, Finland, Hungary, Ireland, Italy, Jordan, Libya, Nepal, Portugal, Cambodia, Laos, Roumania, Bulgaria and Spain.

**Economic Affairs.**—In 1955, as in previous years, Canada attended most of the major international conferences concerned with economic affairs. In September 1955 the second meeting of the Joint United States-Canadian Committee on Trade and Economic Affairs was convened in Ottawa at which trade and economic problems of common concern were examined.

From the Ninth Session of the Contracting Parties to the General Agreement on Tariffs and Trade, opened in Geneva in the autumn of 1954, there emerged a revised Agreement and a proposal to set up an Organization for Trade Co-operation. Canada was again represented at the Tenth regular Session of the Contracting Parties which opened in Geneva in October 1955.

In 1955, Canada made available some \$26,400,000 to provide economic and technical assistance to the under-developed countries of south and south-east Asia under the Colombo Plan. The Canadian contribution in each of the four preceding years was \$25,400,000. At the meeting of the Consultative Committee of the Colombo Plan held in Singapore in October, it was agreed that the first planning period of the Plan which was to conclude in mid-1957 would be extended to mid-1961. Canada's contribution to the United Nations expanded Technical Assistance Programme was also increased.



**Missions Abroad.**—No new diplomatic missions were opened during 1955, although the missions in Norway and Portugal were raised in status from Legations to Embassies. At the end of 1955, Canada was represented abroad by the following missions:—

**Embassies (30)—**

Argentina  
Belgium  
Brazil  
Chile  
Colombia  
Cuba  
Dominican Republic  
Egypt  
France  
Germany  
Greece  
Haiti  
Indonesia  
Israel  
Ireland  
Italy  
Japan  
Mexico  
Netherlands  
Norway  
Peru  
Portugal  
Spain  
Switzerland  
Turkey  
USSR  
United States  
Uruguay  
Venezuela  
Yugoslavia

**Legations (7)—**

Austria  
Czechoslovakia  
Denmark  
Finland  
Lebanon  
Poland  
Sweden

**Offices of High Commissioners (7)—**

Australia  
Ceylon  
India  
New Zealand  
Pakistan  
South Africa  
United Kingdom

**Consulates General or Consulates (11)—**

Brazil:  
São Paulo  
Philippines:  
Manila  
United States:  
Boston  
Chicago  
Detroit  
Los Angeles  
New Orleans  
New York  
Portland  
San Francisco  
Seattle

**Permanent Delegations and Missions (4)—**

Berlin (Military Mission)  
Geneva (United Nations)  
New York (United Nations)  
Paris (North Atlantic Council and Organization for European Economic Co-operation)

Canada does not maintain missions in Iceland and Luxembourg but the Ambassador to Norway is accredited to Iceland as Minister and the Ambassador to Belgium is accredited to Luxembourg as Minister. The Ambassador to Greece is also accredited as Ambassador to Israel and the Minister to Sweden as Minister to Finland. The Ambassador to Cuba is also accredited as Ambassador to the Dominican Republic and to Haiti. Trade Commissioners were also situated in the Belgian Congo, Federation of Rhodesia and Nyasaland, Guatemala, Hong Kong, Jamaica, Singapore and Trinidad.

Princess Margriet of the Netherlands laying the cornerstone of the new Canadian Embassy at The Hague. The Princess was born in Canada during the Second World War. The Canadian Ambassador, Mr. Thomas Stone, looks on.





*The process of education requires time, work and striving—the ability to think straight, some knowledge of the past, some vision of the future, and some skill to give useful service to the community are the vital aims of that process.*



# Education

VARIETY is one of the most distinctive characteristics of educational institutions and programs in Canada. It is intended here to give an impressionistic rather than a definitive view of Canadian education, one that will help to point up this amazing variety.

**Many Authorities.**—There is no national ministry of education in Canada: by constitutional provision, education falls within provincial jurisdiction. In each of the ten provinces there is a provincial department of education responsible for public elementary and secondary schools. In addition, there are agricultural schools operated by departments of agriculture, apprenticeship programs operated by departments of labour, reform schools operated by departments of attorneys general or of welfare, forest ranger schools operated by departments of lands and forests, prospector courses operated by departments of mines. In Newfoundland there are two departments of the provincial government operating schools or concerned in some direct way with programs of education or training. In Prince Edward Island there is but one; in Nova Scotia, 5; New Brunswick, 5; Quebec, 9; Ontario, 8; Manitoba, 4; Saskatchewan, 3; Alberta, 5; and British Columbia, 6.

Within the province, co-operating with the provincial department of education, district boards of school trustees administer elementary and secondary education at the local level. There are more than 20,000 such local boards across Canada. Although there is no federal department of education, there are federal departments responsible for or concerned with certain segments of the field. The education of native Indians is the responsibility of the Department of Citizenship and Immigration. Education in the Yukon Territory and in the Northwest Territories and of all Eskimos is the responsibility of the Department of Northern Affairs and National Resources. Provision of school facilities on military stations is made by the Department of National Defence. The Department of Labour is the medium through which vocational training in the provinces is subsidized by the central government. The Department of Finance is the channel for payment of federal grants to universities. One might list also, as agencies of adult education, the Canadian Broadcasting Corporation, the National Film Board, the National Museum and the National Gallery. And still the list would not be complete.

Add to these governmental authorities in education, the many churches, voluntary associations and other private corporations which operate independent schools, institutes, colleges and universities, and one has a notion of the multiplicity of administering bodies in Canadian education.

**Pre-school Education.**—Day-care centres are to be found in the larger cities—places where working mothers may leave their infants under skilled supervision. Organized play is provided for the older of these children. For children from three to four or five years of age nursery schools are becoming more and more popular in urban centres. Most of them under private control—sometimes in a church hall, sometimes in the director's home, less



often in a building designed for the purpose—these nursery schools teach the art of group living and introduce children to music, painting and the simpler crafts. The kindergarten, in many respects like the nursery school, serves children of four and five years (more often five). Here the atmosphere is still essentially one of play, but as the child nears the age of six he is given an opportunity to become acquainted with the rudiments of reading and numbers, in preparation for his imminent entry to the elementary school. In some of the cities of Canada kindergarten classes are to be found in public elementary schools, but there are many private kindergartens as well.

**Elementary Schools.**—At the age of six a child may enter the elementary school. (In half the provinces he must enter at this age; in the others he must attend from the age of seven.) If he lives in the city the chances are that he will find a relatively large brick school within walking (or zig-zagging) distance of his home. If he lives in a rural area he may have to walk a mile or more to a one- or two-room frame building, heated in winter by a wood fire in an iron stove set in the middle of the classroom. In many parts of the country the farm child's walk to school is now replaced by a ride in a school bus which makes the circuit of distant pupils' homes to take them to and fro.

The religious persuasion of a child's parents, or the language he speaks, may determine to which school he goes. In Newfoundland, for example, there are public denominational schools of six sorts: Anglican, Pentecostal, Roman Catholic, Salvation Army, Seventh Day Adventist and United Church, and there are, as well, some inter-denominational and some non-denominational schools.

The Province of Quebec has a dual system of public schools—Roman Catholic and Protestant—and of the former there are both French- and English-language institutions. In Ontario, there are public (for the most part non-Catholic) and separate (chiefly Roman Catholic) public schools, including those for English-speaking children and those for French-speaking children. Saskatchewan and Alberta, too, have both public and separate schools under public control.

In all provinces, including those in which public provision has been made for denominational schools, there are private church or parish schools established and financed by minority religious groups.

The children of servicemen who are resident on military stations, whether they be in Canada, Germany or France, are provided with schools on the stations. These schools follow regular provincial public-school curricula, but in the overseas centres draw on the rich milieu about them to add glimpses of other cultures to the regular fare.

While some Indian children attend provincially operated public schools, most of them are served by schools of their own. The older pattern of denominational residential schools is being supplanted gradually by day schools located on the Indian reservations. Schooling for Eskimos is more difficult to provide because they are a migratory people. Teachers are made available, though, even when instruction can continue only through a short season.

**Secondary Schools.**—Depending on the city or province in which he lives, a child may progress from the elementary school to one of the many types of secondary school in his seventh, eighth or ninth school year.



*There has been a great up-surge in the building of new schools in the past few years, particularly in the growing city suburban areas—bright, spacious, light-filled structures in which stainless steel, aluminum, glass and plastic and other prefabricated finishes have replaced heavier construction materials and cut down costs. Even so, today's school building costs are estimated at from \$1,000 to \$1,200 per pupil in urban centres.*

There was a time when secondary schooling in Canada was primarily a preparation for entry to university and was undertaken by a relatively small proportion of children. Now the majority of pupils go on to this stage. In order to meet the various needs of such a heterogeneous group, both institutions and curricula have been diversified. There is more variety, of course, in large urban centres where larger numbers of students and greater ability to finance education exist than in rural areas. By the introduction of larger school administration units and centralized, regional high schools, however, variety of curricula has also been made available in many of the more sparsely settled parts of the land.

In some centres there are both junior and senior high schools. The former provides a relatively general program of studies, with opportunity for exploration in a number of different specialized fields. In addition to the usual college preparatory program, the latter frequently offers curricula leading to other types of post-secondary training, or to employment in business or industry, or one which may be designed simply as further general education. In other centres the institutions themselves are differentiated: academic high schools, commercial high schools, technical high schools. The composite high school, with a multilateral program, finds its place too.

In addition to the public high schools, both denominational and non-denominational private schools also occupy the secondary education field. Except in Quebec, most public secondary schools are co-educational. In all

provinces, most private secondary schools are not. Although Canadian adaptations have been made, the basic pattern of the private secondary school in English-speaking Canada is the British "prep" school, with pupils in residence, taught by "masters", and grouped in "forms" rather than grades.

The private secondary school in Quebec is unique. Although there are several varieties, they are typified by the *collège classique*. Operated by religious communities, these schools receive their pupils from the primary schools and take them through two four-year stages to the baccalaureate degree. In recent years some less classical options have been allowed, but the basic curriculum of the *collège classique* is the study of religion, language (French, Latin, Greek and English), history, philosophy and science. Historically, the whole of this curriculum was called *secondaire*, as is its model in Europe. Recently, however, it has become customary to refer to the first four-year stage as *secondaire* (thus comparable to the term "high school" in general use in Canada) and the second four-year stage as *supérieur* (at the level of studies for the bachelor's degree in arts in other provinces).

**Provision for Exceptional Children.**—Nowhere is there more variety than in the educational facilities established for exceptional or atypical children. If a child is unable to attend or to profit from instruction in a regular school, it is likely that somewhere in the country (often in many places) there is an educational program designed for children with his particular type of abnormality or difficulty. Public provision is normally made for the special instruction of children whose exceptionality is shared by relatively large numbers, provided that they are educable. Public provision is made also for those who, though virtually ineducable, are in need of institutionalization. Such public effort is supplemented by private initiative for groups of children in other categories.

In urban public schools it is usual to find special class groupings and special instructional aids, within the regular school, for children whose hearing or sight is impaired, for children whose general health requires specially planned rest or sunshine or both, for children who are slow learners, and occasionally for exceptionally gifted children. Special schools, most of them under public control, are located in the main regions of the country for the education of the blind, the deaf and the dumb.

There are both publicly and privately operated orphanages for children of school age as well as for those who are younger. There are school programs in reform institutions for juvenile delinquents. Children hospitalized for long periods of time (for tuberculosis, for example) may be provided with resident tutors or correspondence instruction or both. Indeed, correspondence courses are available to children who for other reasons, such as distance from school, are unable to attend regular classes. In at least two cities there are schools for crippled children. There are facilities combining physio-therapy and private tutorial for children suffering from cerebral palsy.

In every province there is at least one association of parents and other interested citizens concerned with the mentally retarded child. Under such auspices, and sometimes with a measure of public support, there are classes for retarded children. For mentally defective children there are large residential institutions, often called "training schools", operated by provincial departments of health where, to the extent possible, schooling is carried on.

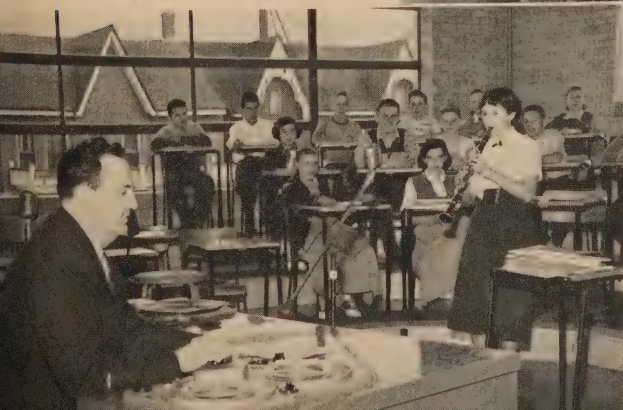
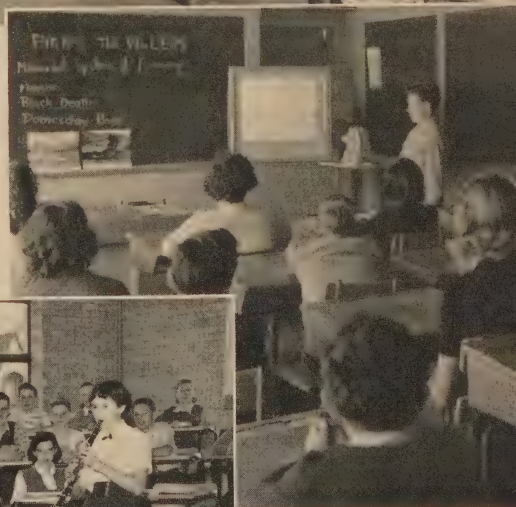




Information dispensed through the use of audio-visual teaching aids is filling the gap between textbook and reality—still and motion picture projectors, radios and disc and tape recorders are becoming standard school equipment.



Canada has achieved a leading position in the production and use of educational films and film strips. Radio programs, especially planned by educationalists are broadcast daily to all parts of Canada and experiments are under way to evaluate the place of television in the school.





*Vocational training very often includes part of the general education program in provincially operated high schools.*

**Vocational Training.**—Quebec is the only province in which vocational training is sharply differentiated from general education. The Quebec Department of Education operates the academic schools, while other departments, notably the Department of Social Welfare and Youth, operate vocational schools of many sorts.

In that Province also are trade schools and apprenticeship schools for those with elementary school background, technical schools which include four-year courses up to the junior college level, agricultural schools with short and longer courses, institutes of family living for potential homemakers, and specialized schools for the training of paper-makers, dairymen, sawmill operators, furniture-makers, artists and architects.

In most provinces vocational education has been made a part of general education, especially where the composite high school exists. In such a school a boy might include in his general course special study of agriculture, wood-working, metal-working, electricity, art or book-keeping, and a girl might include home economics or stenography. (The list is illustrative only.)

There are, in addition, many strictly vocational schools and institutes under public control and many private trade schools and business "colleges". These range from a post-secondary technical institute with 24 different courses and more than 6,000 day and evening students to a private welding school with less than a dozen trainees. Trade and apprenticeship training programs, many of them subsidized by the Government of Canada, prepare plumbers and plasterers, bricklayers and electricians, auto mechanics and welders. Provincial agricultural schools provide courses in scientific farming for boys, in household science for girls, and, during the winter season, short courses on such special subjects as the care of farm implements.

Other types of vocational schools and courses include those for textile workers, in mining technology, for prospectors, in hotel management, for forest rangers and for fishermen. For young women there are hospital schools of nursing, schools for nurses' aides, courses in laboratory technology, schools of interior decoration.



**Training of Teachers.**—Until comparatively recently most elementary school teachers were trained in one year in a “normal school”, entered after graduation from high school, and high school teachers obtained professional certificates by taking a one-year course, usually in university, after achieving the bachelor’s degree in arts or science.

There are still some one-year normal schools, although the term “teachers’ college” is gaining currency as the name for these institutions. More and more, however, teacher-training is being related to the university. In three provinces—Newfoundland, Alberta and British Columbia—and in the Protestant system of the Province of Quebec, all teachers are now university trained. In Nova Scotia, New Brunswick and Saskatchewan, and in the Roman Catholic system of the Province of Quebec, there are still normal schools but they are more closely related to the universities than was the case ten years ago.

As in many phases of education, the Province of Quebec has teacher-training institutions which differ markedly from those of the other provinces.

*Nova Scotia teachers attending summer school.*

*Knowledge, attitude, skills and ideals are the teacher’s stock in trade and continuous study, individually or through special summer courses, keeps them abreast of new methodology and advances their capabilities.*





These are the *écoles normales*, operated, with provincial government assistance, by religious communities—some for young men, most for young women—and *scholasticats-écoles normales*, also run by religious communities, for the training of brothers and nuns as teachers.

**Universities and Colleges.**—Each of the provinces has at least one provincially controlled university or college, or a provincially controlled professional school attached to a private university. Each of the larger religious denominations, and many of the smaller ones, operates at least one university or college. The Federal Government's Department of National Defence operates three military colleges. There are also many institutions of higher education which are independent of both state and church.

Student bodies range in size from fewer than 100 to over 10,000. There are institutions in which the English language is the medium of instruction, there are those that teach in French, and a few that are bilingual.

Among institutions of higher education there are junior colleges, taking students just one or two years beyond high school graduation; there are some that offer only the bachelor's degree, some up to the master's in selected fields and some that offer the doctorate. A small college may be limited to a single faculty of arts, while the larger universities have a score or more of faculties, professional schools and research institutes, and often a number of affiliated colleges.

Most but not all universities are co-educational. Some have residential accommodation for their students. The universities are usually located in the larger cities or their suburbs, while the colleges are found in both urban and rural settings.

**Adult Education.**—Except for the programs of voluntary associations, those of few other institutions are devoted exclusively to adult education. The chief agencies in the field are the provincial authorities that administer secondary and vocational education, the local city school boards, and the universities.

A city dweller may attend night classes to finish his high school course, to acquire office skills, to learn a trade, or to develop a hobby, serious or frivolous. He may work toward a university degree or profit by attendance at regular or occasional lectures on subjects as varied as the interests of the nation's cadre of professors. One who lives in a town, village or rural area may be served by university extension lectures or projects, taken from the seat of the university to its hinterland; by institutes, courses or discussion groups arranged for farmers and their wives by provincial departments of agriculture, by farm-women's organizations, or by their own initiative; by correspondence courses available from provincial departments of education, from universities and from private correspondence schools.

Whether he lives in the city or works in a mine or a lumber camp, the recent immigrant will find opportunities to learn one of the two languages of the country and the elements of its history and form of government.

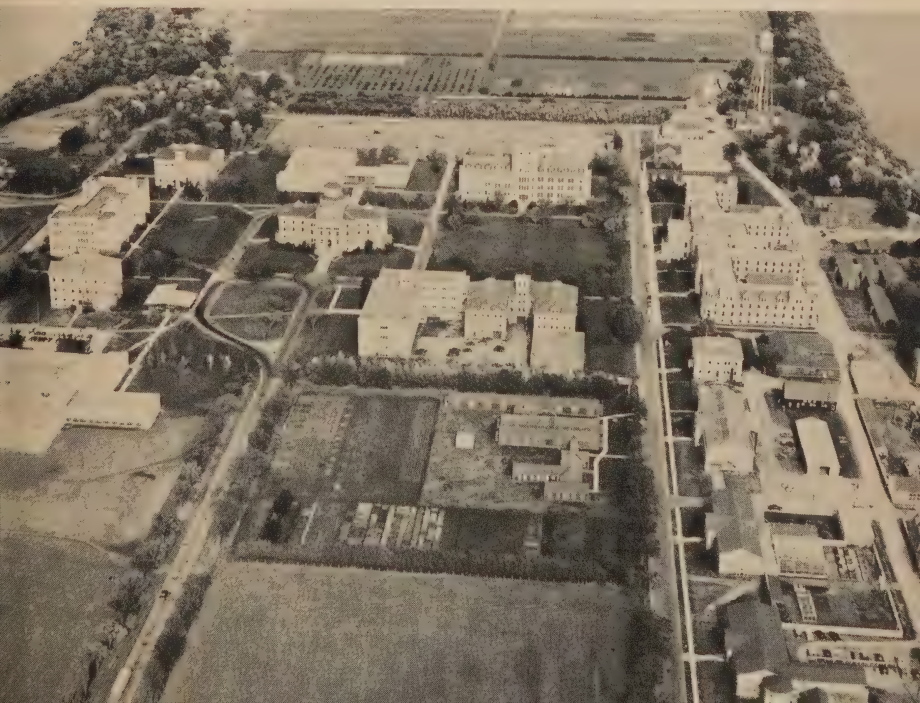
Whoever has a radio or a television set has in his home the tremendous range of educational programs of the Canadian Broadcasting Corporation and the private stations: talks, interviews, panel discussions, symposia, news reports and analyses, demonstrations and on-the-spot reports, not to mention

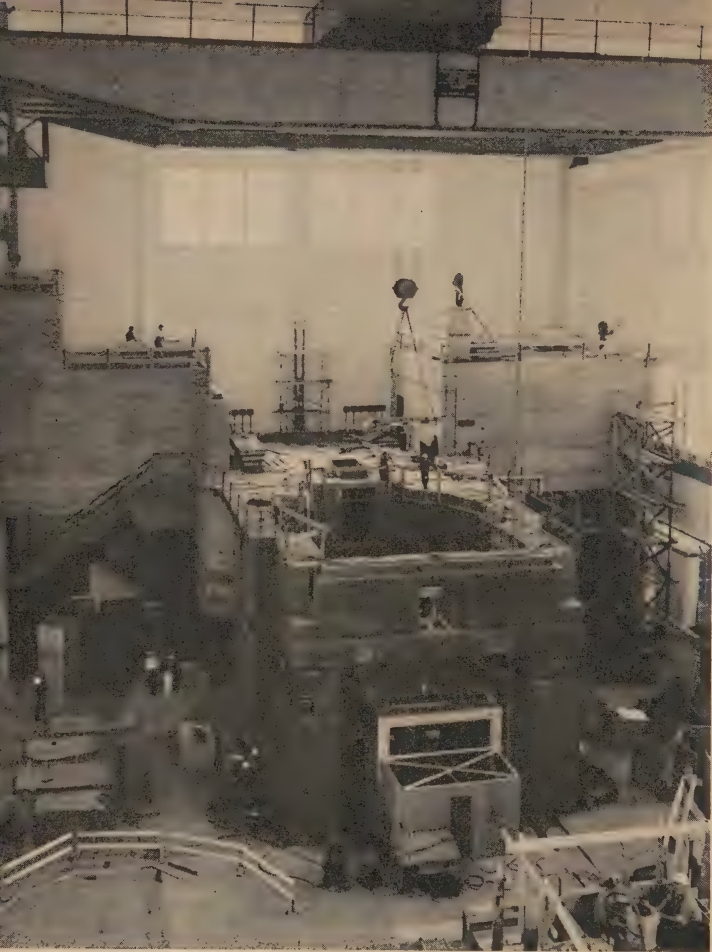
a wealth of music and drama. Whoever goes to the cinema may tap not only the world of entertainment, but may see documentary films on every conceivable topic, produced by the National Film Board and a growing number of private film producers. Library services, too, have been extended beyond city and town limits by railway car, bookmobile and mail: books are available to the one who wishes to pursue his further education alone.

### *Statistics of Canadian Education, Academic Year 1952-53*

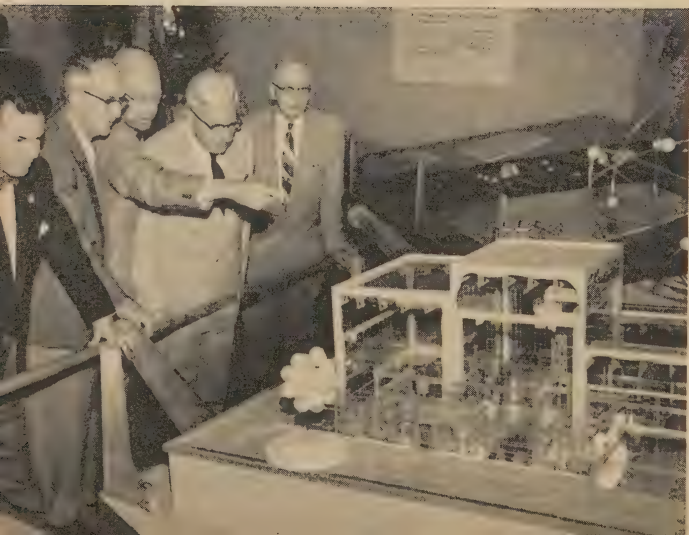
Type of School	Schools	Teachers	Pupils
	No.	No.	No.
Elementary and Secondary Schools (incl. some vocational training)			
Regular public.....	30,731	98,125	2,666,216
Regular private.....	1,169	7,830	167,042
Schools for the blind and deaf.....	13	310	2,054
Indian schools.....	456	842	25,949
Evening classes.....	—	—	223,493
Teacher training.....	140	1,481	12,378
Normal schools.....	117	1,257	10,216
University faculties.....	23	224	2,162
Universities and colleges (excl. teacher training)..	262	10,878	106,386
Full-time university grade.....	—	5,823	60,879
Other (incl. university extension).....	—	5,055	45,507

*The University of Manitoba at Winnipeg is the nucleus of higher education in that Province. The University was established in 1877 and its original instruction in the fields of science and medicine has since grown to include a great range of faculties and affiliates.*





Canada's third most powerful reactor, known as the NRU, now in final stage of construction, will permit considerable expansion in research and in production of radio-active isotopes.



Plastic model of Canada's first experimental nuclear electric generating station, to be built 150 miles northwest of Ottawa, showing the reaction from uranium fuel from the time it is placed in the reactor until steam is produced to turn the turbine generators.



# Scientific Research

CANADA has taken immense strides during the past decade or more in scientific and industrial research through a typically Canadian co-operative approach—the co-ordination of expanding research activities of government, university and industry by means of associate committees of specialists and an intimate flow of personnel and information that tend to bridge facilities scattered across the vast expanse of a transcontinental state.

While many Canadian industrial establishments have in recent years become research conscious and have enhanced thereby their respective contributions to the recent emergence of Canada as a highly industrialized nation, most of the industrial research has long been carried on by government. The National Research Council plays the leading role in scientific and engineering fields at the national level, while several provincial research councils stimulate and support research designed to assist primary and secondary industries in developing the natural resources of the provinces. A number of federal departments of government—notably Agriculture, Fisheries, Mines and Technical Surveys, National Defence, National Health and Welfare, Northern Affairs and National Resources, and Trade and Commerce—have permanent branches that carry on research in the national interest in such practical fields as soils and crops; processing and marketing of fish; silviculture and forest products; geodetic, topographical, hydrographic and geological surveys and metallurgy; military problems; food and drugs, nutrition and medical care; and the mastery of the Arctic environment. The Dominion Observatory at Ottawa and the Dominion Astrophysical Observatory at Victoria, B.C., specialize in solar physics, geophysics and astrophysics, while Atomic Energy of Canada Limited is engaged in a broad research and development program in the field of nuclear fission—an outline of which concludes this brief survey on scientific research.

A significant role is played by *Canada's universities* in both fundamental and practical research. A wide variety of studies are at present being carried out in such diverse fields of pure research as mathematics, nuclear physics, electrical communication, isotopes and the cobalt bomb. Practical research in the universities, influenced largely by industrial and social life in the communities around them, embrace such fields as primary agriculture, industry, minerals, lands and forests, fisheries, atomic energy, health and town planning. Most of the research in the universities is financed by grants-in-aid, scholarships and fellowships from the federal and provincial governments, from foundations, industrial corporations and individual donors. While some of this aid is available for research undertaken by university professors or by students doing post-graduate work under the direction of a professor, the major portion is expended on behalf of larger research projects undertaken on a faculty basis in the university laboratories or in special institutions such as agricultural colleges or medical research laboratories.

For many years in Canada, *medical research* has been making notable contributions to the health of the nation and to medical knowledge generally through support provided by the federal and provincial governments, by private foundations or corporations, and by universities or hospitals in the



Model of a power plant on the Bow River, west of Calgary, Alberta, under study in the Hydraulic Laboratories at the University of Toronto.

form of research fellowships for training and capital and salary expenses to permit investigations in specialized fields. Most of the fundamental medical studies are carried on in medical schools through federal funds from the National Research Council, the Defence Research Board and the Department of National Health and research grants from provincial branches of the Canadian Cancer Society and such government foundations as the Ontario Cancer and Research Foundation, not to mention the noted Banting Research Foundation, or various fraternal societies, service clubs and pharmaceutical companies, etc. With help from such diverse sources as these, active research programs are in progress in each of the twelve Canadian medical schools where notable contributions to medical knowledge are being made by Canadian scientists. Outstanding among these research programs are those of the Connaught Medical Research Laboratories at the University of Toronto, and the Montreal Neurological Institute.

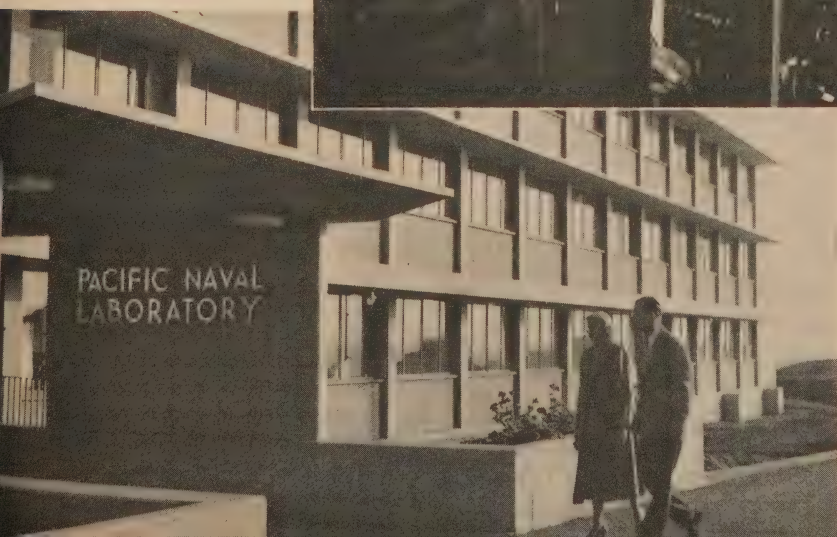
A representative picture of *industrial research* in Canada, which has been expanding rapidly in recent years, may be gained by a brief reference to the research facilities of a few leading Canadian manufacturing establishments. Aluminium Laboratories Limited conducts research at Arvida in the production of metallic aluminium and at Kingston in various aspects of metallurgy. Ayerst, McKenna and Harrison Limited carries on original investigations in the fields of vitamins, hormones, antibiotics and chemotherapeutic agents. Canada Packers Limited has research groups studying meat production, edible oils, manufacturing processes and the development of by-products of pharmaceutical and industrial interest. Canadian Industries (1954) Limited carries on research in the utilization of Canadian raw materials to meet the needs of basic industries in Canada. Canadian Chemicals and Cellulose Company Limited, through its operating subsidiaries, conducts intensive cellulose and petrochemical research at Prince Rupert and Edmonton. The Consolidated Mining and Smelting Company of Canada Limited carries on investigations in extractive metallurgy and chemical processes. The

Dominion Rubber Company Limited and Polymer Corporation Limited maintain well-equipped laboratories for the development of new and improved chemicals required by the rubber industry. Imperial Oil Limited, International Nickel Company of Canada, Limited and Shawinigan Chemicals Limited are each actively engaged in fundamental and applied research looking to the development of new processes, products and uses, while the research division of The Hydro-Electric Power Commission of Ontario and the Pulp and Paper Research Institute of Canada are leading examples of the Canadian practice of co-operation between industry and government or university in the advancement of scientific knowledge.

**National Research Council.**—Since its inception in 1917, NRC has had a profound effect upon Canadian research. Its first act was to establish a system of grants and scholarships to stimulate research in universities and to assist students in financing post-graduate training—still an important part of the Council's activities. (More than 3,000 scholarships have been granted to date.) The next step was to set up the associate committee mechanism to co-ordinate research of a national character.

*RCN ships are used by the Defence Research Board for under-water sound experiments and studies of oceanographic conditions, the results of which will aid in the detection of enemy craft and the development of equipment for harbour protection.* ►

The Pacific Naval Laboratory at Esquimalt, B.C., is one of two established by DRB for the study of problems of special interest to the Royal Canadian Navy. ▼





It was not until 1925 that NRC began its own laboratory work and not until 1932 that the National Research Building housing four divisions (Physics and Engineering, Biology and Agriculture, Chemistry, and Research Information) was opened on Sussex Street in Ottawa. The Mechanical Engineering Division was established in 1936, and in 1939 a 130-acre building site was acquired on the Montreal Road near Ottawa, a site that has now been extended to 400 acres.

World War II brought a ten-fold expansion to NRC—in 1945 it had more buildings than it had scientists in 1939. Twenty-one laboratories were opened from coast to coast during the War, their interests ranging from cold weather research to aeronautical engineering and atomic energy. NRC was engaged in almost every field of war research and contributed much to the war effort. For example, more than 30 types of radar equipment were designed and war-time production of these was worth over \$300,000,000. Canadian radar gear protected not only the cities and coasts of Canada but also the Panama Canal Zone and the cities of the United Kingdom. Canada also provided the Commonwealth's naval forces with two of the most important types of radar gear used in the later years of the War.

NRC's growth was continued in the post-war era—1946 saw the establishment of the Medical Research Division and the transfer of the atomic energy project from the University of Montreal to Chalk River in Ontario; 1947, the formation of the Building Research Division and the Radio and Electrical Engineering Division; 1948, the beginning of the Prairie Regional Laboratory at the University of Saskatchewan in Saskatoon; 1952, the opening of the Maritime Regional Laboratory at Dalhousie University in Halifax.

Today, the staff of NRC numbers 2,400, of whom about 600 are scientists (average age is 34). About half of NRC's scientists hold degrees at the doctorate level and the remainder hold degrees at the master's or bachelor's level; about 150 of these scientists are also engineers. The Council operates on an annual budget of about \$17,000,000, of which \$16,000,000 comes from the Federal Government and \$1,000,000 from royalties and fees (NRC also does special research for industry on a fee basis). Foundation work (scholarships, assisted research grants, associate committees) takes about \$2,500,000 and the laboratories the remainder of the Council's funds. An Advisory Council, responsible to a committee of seven Cabinet Ministers, has direct and final authority on grants and scholarships, and formulates the broad policy that governs the operation of the laboratories. Most of the Council's 21 members are drawn from the senior scientific staffs of universities; others represent labour and industry.

The NRC's laboratories are organized in nine divisions. The current activities of the *Division of Applied Biology* range from applied studies on food storage and transportation to fundamental work on the metabolism and chemical composition of living organisms. Frozen storage of living cells and small organisms is under investigation as well as studies on blood plasma albumins, on the production of citric acid by submerged fermentation of beet-sugar molasses, and on the carbohydrate composition of various grains and seaweeds.

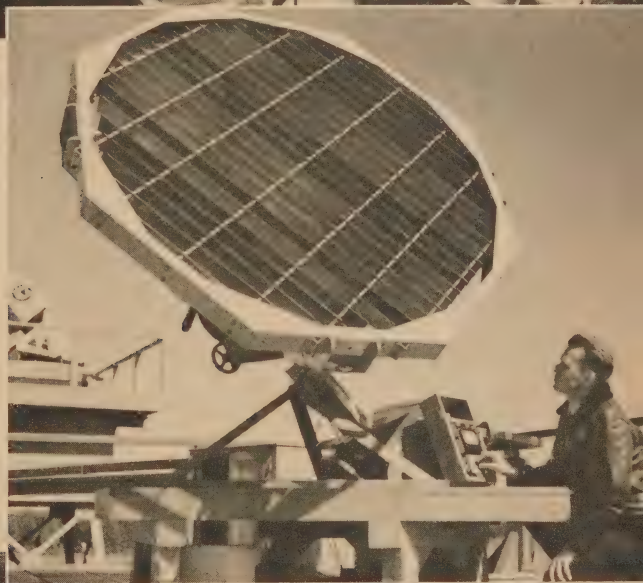
The *Division of Pure Chemistry*, concerned with investigations in the organic, inorganic, physical and colloid fields of chemistry, is endeavouring to

ATIONAL RESEARCH  
OUNCIL ACTIVITIES

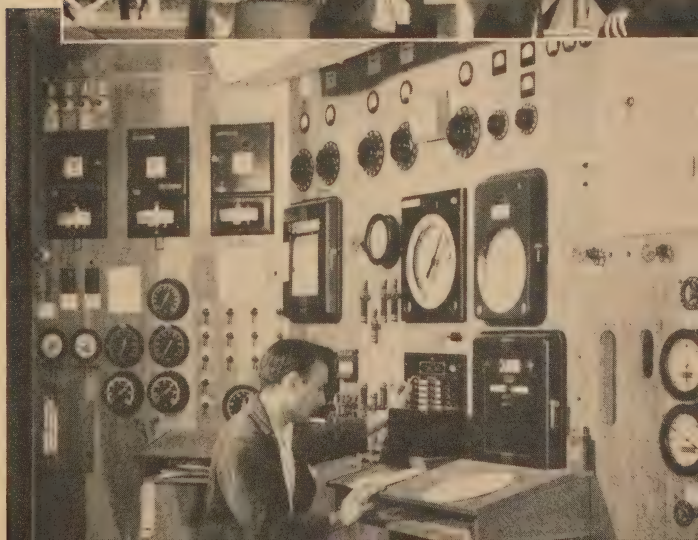
ereoscopic plotter that  
ay be used for rapid  
urvey mapping, es-  
pecially in city planning.



radio telescope used for  
olar noise observations.



operating panel for a  
pilot oil cracking plant  
operated in the NRC  
laboratories where re-  
search is being carried  
out on the thermal and  
catalytic cracking of  
Canadian heavy crude  
oils.



discover why certain chemical reactions behave as they do, and to determine the ultimate spatial structure of unknown compounds.

A major function of the *Division of Applied Chemistry* is the development of chemical processes that will utilize Canada's natural resources and, at present, petroleum products are receiving special attention. Study is also being given to corrosion in automatic cooling systems. In the rubber laboratory, research has been directed towards the use of lignin as a reinforcing agent for rubber, and improvements have been made in an adhesive based on cyclized rubber and suitable for bonding rubber to metal.

Important contributions have been made by the *Division of Pure Physics* on various fundamental problems including X-ray diffraction, cosmic rays, spectroscopy, solid state physics and theoretical physics.

The *Division of Applied Physics* serves Canada with its significant contributions to Canadian mapping methods, its provision of a common dosage standard for X-radiation at cancer clinics, and its co-operative program with the Canadian Pulp and Paper Association on noise abatement in the paper industry. Studies in the standards field have led to a highly precise temperature scale through most of the international range, and the reproduction of the standard of brightness through the brightness of melting platinum.

The *Building Research Division*, in close co-operation with the construction industry and Central Mortgage and Housing Corporation, is conducting an extensive program of research in building materials, house heating, insulation, fire research, building physics, design characteristics and soil mechanics. The National Building Code has been revised and brought up to date.

The *Mechanical Engineering Division* embraces many branches of aeronautical research, together with certain phases of hydraulic and mechanical engineering and naval architecture. The Division includes units for work on aerodynamics, engines, fuels, lubricants, structures, and instruments; operates a flight research station where equipment produced in the laboratories can be tested in actual flight; functions as a research organization for the Armed Services; and provides Canada's aviation industry with research, development and testing facilities. High-speed wind tunnels are used to study aircraft characteristics at supersonic speeds. A thermodynamics laboratory has begun work on combustion, compressors and turbines. The low temperature laboratory has developed an automatic system of electrothermal de-icing of aircraft.

The *Radio and Electrical Engineering Division* is working on several military projects in co-operation with the Defence Research Board. Considerable basic research is also being carried on in radio-physics and in radio and electrical engineering. Subjects of civil rather than military interest include testing and development work for electrical manufacturers; electronic work associated with a program of electromedical research in progress at the University of Toronto; civil radar techniques, especially in their application to air and sea navigation and aerial survey problems; and solar noise observations, radio-frequency mass spectrometers, antenna design, electronic detection of flaws in paper, and the explosion hazards of static electricity generated by grain handling.



The *Medical Research Division* promotes medical research through fellowships and grants-in-aid to workers in Canadian medical schools. Since 1946, 244 fellowships have been taken up by 148 graduates. Seventy of these fellows are known to be attached to medical faculties in Canadian universities. Many different fields of medical research are being supported, including studies relating to the central nervous system, endocrinology, properties of the blood, metabolism, and shock.

## **Atomic Energy**

Atomic Energy of Canada Limited, a Crown company, is entrusted with research and development to enable Canadian industry, agriculture and medicine to take full advantage of the many new opportunities that have arisen from the discovery of nuclear fission. Its main laboratories and plant are situated at Chalk River, Ont., on a site bordering the Ottawa River about 120 miles west of the Capital. The project was started in the late stages of the War when Canada was co-operating with the United States and the United Kingdom in an effort to make atomic energy a decisive factor in that struggle. Since 1945 its work has been directed towards peaceful applications of atomic energy in science and industry and particularly towards the large-scale generation of electricity. At the same time, fundamental research on the structure of the atomic nucleus has prospered and laboratories have been equipped for studying the basic chemistry of the radioactive substances which characterize atomic energy work and for research into the effects of atomic radiations on living organisms. From the start of the project to March 1956, the Government of Canada has voted a total of approximately \$160,000,000 for the development of atomic energy, and 2,100 persons are now employed at Chalk River.

Much of the work that has been carried out was made possible by the operation at Chalk River of the two reactors ZEEP and NRX. These reactors, in which uranium and heavy water are the two most essential materials, have been in operation since 1945 and 1947, respectively. ZEEP is operated only at very low power and is used for research on improved reactor systems. NRX, on the other hand, normally operates at 40,000 kw. and for several years held its place as the world's most powerful research reactor. In 1955, as part of the program of technical assistance under the Colombo Plan, Canada offered to aid India in the setting up of an almost identical reactor near Bombay, thereby making available facilities similar to those which Canada has enjoyed.

Through the operation of NRX, it has been possible to produce large quantities of radioactive isotopes for numerous different applications in industry, agriculture and medicine. These isotopes have been made available to many organizations in Canada and in a large number of other countries through the Commercial Products Division of Atomic Energy of Canada Limited, which has its own separate laboratories in Ottawa.

A Conference on the Peaceful Uses of Atomic Energy was organized by the United Nations and held at Geneva in August 1955. Canada was represented on the seven-nation Scientific Advisory Committee set up to plan the program, a Committee that has since been established on a continuing basis to advise the United Nations on the other aspects of atomic energy development.

On the Canadian delegation were representatives not only of the Crown companies but also of Canadian industry and universities and of several Federal Government departments. Technical papers were presented on various aspects of atomic energy and on its future place in Canada's economic development. An exhibit was set up adjacent to the Conference rooms at which there were displays showing uranium mining, instruments and models of the Chalk River reactors and two cancer therapy units, manufactured in Canada for use with radioactive cobalt.

The Conference marked the end of a decade which, of necessity, had been characterized by government controls and secrecy; it marked the opening of one in which the development of atomic energy will increasingly become the responsibility of private industries rather than of governments and in which, it is hoped, many of the promises of fruitful applications will be fulfilled. The Canadian project is planning a number of new developments. In the five years between 1956 and 1961, it is expected that the Canadian Government investment in atomic energy will amount to \$100,000,000 and that private industry will be making an increasing contribution.

A new heavy-water reactor known as NRU is expected to go into operation at Chalk River in 1956. Producing 200,000 kw. of heat, it will be five times as powerful as NRX and will permit a considerable expansion in research work and in the production of radioactive isotopes. This reactor will not generate electricity but will provide facilities for experiments in which all the conditions of a power-producing reactor can be simulated.

At the same time and in co-operation with private industry and with The Hydro-Electric Power Commission of Ontario, design is well under way for the first Canadian power-producing reactor. This, to be known as NPD, is planned for completion in 1958 and will be located at Des Joachims about twenty miles from the Chalk River Project. It is to be built in the tradition of NRX and NRU, using heavy water and natural uranium, and is expected to generate 20,000 kw. of electric power for the Hydro system. Experience gained through the operation of this small reactor will be of great benefit when larger, more economical units are built. Intense efforts will continue toward the goal of large-scale production of electricity by the 1960's.

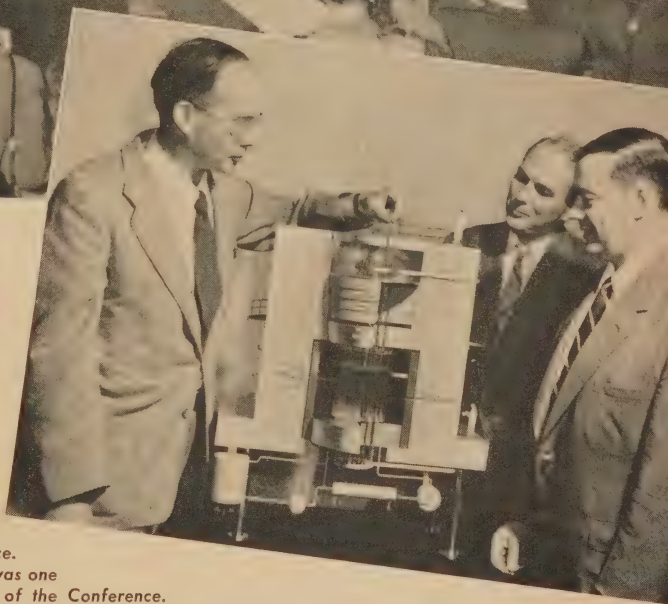
The whole Canadian power utility industry is kept informed on progress towards the realization of economic atomic power through the medium of an Advisory Committee which meets annually at Chalk River and is composed of representatives of power-producing and distributing companies.

Finding the answers to such problems as the choosing of materials that can survive the quite exceptional conditions existing inside a nuclear reactor and the safe disposal of radioactive wastes can best be achieved by stimulating a free exchange of ideas between all who are likely to be able to contribute. To this end, the Canadian Project will continue to publish as far as possible the results of its work. Canada will continue to co-operate with the United States and the United Kingdom to determine what information must remain guarded and, as a result of a recent review of the work of the past ten years, a large amount of atomic energy information will be published and made available to Canadian industry.

While primary emphasis is placed on the production of electricity, other beneficial applications of atomic energy are by no means neglected. Cancer



*Secretary-General of the United Nations visiting the Canadian exhibit at the Conference on the Peaceful Uses of Atomic Energy held at Geneva, Switzerland, in 1955.*



*Top atomic research scientists examining the model of NRX displayed at the Conference. Dr. A. G. Ward (right) was one of the six Vice-Presidents of the Conference.*

therapy units manufactured in Canada have been supplied to hospitals in the United States, the United Kingdom, France, Italy, Brazil, Switzerland and New Zealand as well as in Canada. One has recently been offered to Burma under the Colombo Plan. The current production of cobalt is such that approximately thirty hospitals each year can be equipped with these cobalt beam therapy units.

It is becoming abundantly clear that all the biological sciences from forestry to medicine are making a step forward by the use of isotopes in research. The power to control may be expected to follow the understanding so gained. Also on every hand it is becoming apparent that the availability of radioactive substances and their radiations is bringing improvements in many industrial operations.





*A great organization, highly mechanized and efficiently planned, and the daily work of hundreds of people whose occupations may be classified into about 75 different categories from scientist to labourer, is here resolved into the health and happiness of one small human being.*

# Health and Welfare

THE spectacular rise in the general level of living in Canada that has occurred particularly in the post-war years has been accompanied by important improvements in the health of the population and in the establishment of protective health measures. The Canadian people today have a higher life expectancy than ever before—66 years for men and 71 years for women—and are freed from the threat of many diseases that afflicted previous generations. A system of income security programs, developed and expanded since the 1930's, provides some measure of protection against extremes of poverty for aged, disabled or unemployed persons and for families where the breadwinner is incapacitated or lost. There has been a great post-war expansion of hospital and local health facilities as well as a substantial extension and improvement of welfare services at the provincial and local levels. Some progress has been made toward ensuring that no one is deprived of necessary health care because of inability to pay or residence area.

## • Health in Canada

The results of recent advances in medical and allied sciences and in health services which have so markedly improved the health of the Canadian people are easily illustrated by the fact that in the past ten years the infant mortality rate has dropped nearly 40 p.c. to 32 deaths per 1,000 live births and maternal mortality almost 70 p.c. to 0.7 deaths per 1,000 live births.

Progress in overcoming communicable diseases has been perhaps the greatest single factor in improving health conditions; communicable diseases now account for only about 2 p.c. of all deaths, one-sixth of the rate of thirty years ago. Such diseases as smallpox, diphtheria and typhoid fever have been practically eliminated through immunization and improved environmental sanitation. Extension of case-finding and treatment methods has reduced the incidence and severity of tuberculosis to a point where its control can be foreseen. Pneumonia, rheumatic fever and venereal disease are but some of the illnesses that have been markedly decreased through the use of antibiotics. Salk vaccine is now recognized to have great promise for the eventual overcoming of poliomyelitis.

At the same time, reduction of mortality in all age groups and the much greater number of people living longer have inevitably resulted in increasing disability and death from the chronic and degenerative illnesses generally associated with the middle and older age groups. Cardio-vascular diseases, vascular lesions of the nervous system and cancer now account for 60 p.c. of all deaths, double the proportion thirty years ago and the mental illnesses have become increasingly important in the older and more urban population. Much progress has, however, been made in treating chronic conditions. In particular, cortisone and other steroids, chlorpromazine and other hypotensive drugs have been used effectively for their relief and reduction. Canadian-discovered insulin continues to play the major role in the control of diabetes.

Increasing concern is being given to accidents as an important cause of injury and death in all age groups. They are now the leading cause of death in

childhood; motor-vehicle accident deaths are increasing rapidly, particularly among adolescents, and in industry over 400,000 accidents are reported annually.

A picture of sickness experience in the population that has never before been available was provided through the Canadian Sickness Survey of 1951. The Survey indicated that nearly half the population were confined to bed at some time during that year. Another tenth suffered illness that interfered with normal activity and another fifth showed various symptoms and suffered minor illnesses. Only one-fifth had no sickness during the year. Of the estimated 34,000,000 illnesses occurring during the Survey year, about two-fifths were common cold and influenza. The Survey showed that duration of illness increased with age—for children under 15, sickness lasted about 12 days, for persons 65 and over, for 60 days. Approximately 3 p.c. of the population suffered from severe or total permanent physical disability and about 60 p.c. of disabled persons were 45 years or over. The leading causes of permanent physical disability were heart disease, arthritis and rheumatism, residual impairments from accidents, blindness and deafness.

## **Health Services**

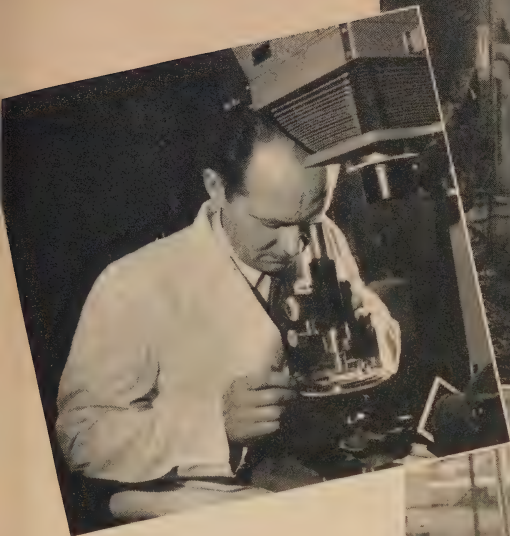
The scope and nature of public health services have been continually evolving since the first provincial board of health was established in Ontario in 1882 and the first provincial health department in New Brunswick in 1918. The initial acceptance of public responsibility for environmental services, inevitably expanded to include increasingly comprehensive control of communicable disease, has in turn given way to the modern conception of public health as a buttress and support to the hospitals and to medicine, the essential foundation on which all health care is built.

The public health services developed in response to this conception are a complex interweaving of local, provincial and federal effort, in which direct responsibility rests with the provincial and local governments, assisted by national and local voluntary agencies. Federal responsibility has constitutionally and by tradition been confined to special programs of a nation-wide nature and to the provision of assistance to the provinces.

**Federal Services.**—Federal participation in health matters is largely centred in the Department of National Health and Welfare, with important treatment programs being administered by the Department of Veterans Affairs (*see* p. 96) and the Department of National Defence. The Dominion Bureau of Statistics is responsible for the compilation of health and hospital statistics (*see* p. 87), the National Research Council makes grants in support of medical research and the Department of Agriculture has certain health responsibilities connected with food production.

The Department of National Health and Welfare has jurisdiction in such matters as control of food and drugs including narcotics, quarantine and immigration medical services, the carrying out of international health obligations and the provision of health services to Indians and Eskimos, sick mariners and other groups. In addition, it provides financial assistance to the provinces through the National Health Program, serves in an advisory and co-ordinating capacity to them, and makes grants to certain national voluntary agencies.





The promotion and maintenance of a high standard of health among workers in almost every type of occupation is the concern of the Department of National Health and Welfare. In any one year investigations may include the control of noise in a factory, potential health hazards in air transport, fumes from industrial plants, excessive dust in a textile mill or spray hazards in apple orchards. The Department works in conjunction with provincial governments, industry, labour groups, local health and other organizations.



*The National Health Program.*—Since 1948, federal financial assistance has been provided through the National Health Program for the extension and development of provincial health and hospital services. Funds are made available for general public health, tuberculosis control, mental health, venereal disease control, cancer control, services for crippled children, professional training, public health research, hospital construction, laboratory and radiological services, medical rehabilitation and child and maternal health. During the first seven years of the Program, \$241,332,000 were made available to the provinces. Amounts expended totalled \$153,883,000 or 64 p.c. of the total funds available.

**Provincial Services.**—Provincial programs are administered through provincial and local health departments and by health units serving counties or groups of municipalities. Most provinces operate laboratories and provide preventive and treatment programs for venereal disease, tuberculosis, mental illness, cancer and other conditions. There has been increasing provincial participation in general hospital-care insurance programs, grants to hospitals and health-care services for public assistance recipients.

The larger municipalities provide a range of basic public health services including environmental sanitation, communicable disease control, child, maternal and school health services, public health nursing, health education and vital statistics. They participate in the costs of hospital care and supply medical services to indigents. Some 158 full-time local health units or districts and 30 urban health departments serve about 11,500,000 persons, almost 75 p.c. of Canada's total population.

The most successful efforts to control specific diseases have resulted from the development of preventive immunization techniques. Smallpox, diphtheria, tetanus, typhoid fever and whooping cough have been eliminated or greatly reduced by mass immunization programs undertaken by provincial and local health departments. Federal, provincial and local health authorities are co-operating in an immunization program against poliomyelitis as rapidly as supplies of Salk vaccine can be produced. Several provinces provide free treatment and rehabilitation services for poliomyelitis, most provide substantially free care for tuberculosis and all supply free diagnosis and treatment of venereal disease.

Until recently, public mental health programs involved chiefly the treatment and custodial care of persons committed to mental institutions. Treatment has been hampered by lack of staff and facilities and shortages of qualified personnel. Although some progress has been made in increasing the number of mental hospital beds and in the development of community clinics and psychiatric units in general hospitals, the provision of adequate mental health services remains a most severe problem.

Voluntary agencies have taken a prominent part in the provision of services for, and the carrying on of educational programs concerned with, certain disease problems such as arthritis and rheumatism, cerebral palsy, multiple sclerosis, alcoholism and mental deficiency, through publicity, fund-raising and support of clinical services, rehabilitation and research.

Expansion of hospital facilities has been rapid in the post-war period. This growth has been stimulated by the federal-provincial Hospital Construction Grant under which the Federal Government may contribute up to \$1,000

for each approved active treatment bed, \$1,500 for each chronic or convalescent bed including beds for tuberculosis or mentally ill patients, and additional amounts for specified auxiliary facilities; federal contributions must be matched by the province concerned. Beds approved for construction from 1948 to the end of 1954 included 30,481 active treatment, 5,158 chronic-convalescent, 14,254 mental, 4,339 tuberculosis, 6,648 bassinets and 8,084 nurses beds.

**Hospital Statistics**

The statistical data on the institutional aspects of health, published annually by the Dominion Bureau of Statistics, include detailed information on the different types of institution, on size, ownership, costs of operation, sources of revenue, movement of patients, personnel and services rendered. Because mental illness and tuberculosis are especially important in the public health field, additional details are given on the patient population in mental institutions and tuberculosis sanatoria.

*Summary Statistics of Hospitals, 1954*

Item	General	Special	Mental	Tuber- culosis	Total
	No.	No.	No.	No.	No.
Public Hospitals—					
Number reporting.....	762	55	73	56	946
Bed capacity.....	66,081	9,397	52,008	13,942	141,428
Average daily population.....	58,078	8,438	59,823	12,590	138,929
Admissions.....	2,205,335	46,702	25,661	16,046	2,293,744
Private Hospitals—					
Number reporting.....	62	107	2	1	172
Bed capacity.....	1,180	2,285	295	21	3,781
Average daily population.....	2,729 <sup>1</sup>	2	288	1	3,018
Admissions.....	60,490 <sup>1</sup>	2	1,744	—	62,234
Federal Hospitals—					
Number reporting.....	39	7	—	7	53
Bed capacity.....	11,696	308	—	1,211	13,215
Average daily population.....	10,903 <sup>1</sup>	2	—	1,093	11,996
Admissions.....	83,512 <sup>1</sup>	2	—	1,143	84,655
All Hospitals—					
Number reporting.....	863	169	75	64	1,171
Bed capacity.....	78,957	11,990	52,303	15,174	158,424
Average daily population.....	71,710	8,438	60,111	13,684	153,943
Admissions.....	2,349,337	46,702	27,405	17,189	2,440,633

<sup>1</sup> Includes general and special hospitals.      <sup>2</sup> Not available.

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nfidence.







*The new Montreal General Hospital was opened for occupancy in 1955. This great institution, like other hospitals, is a city in itself, operating efficiently twenty-four hours a day and seven days a week. It provides service formerly provided in the old Montreal General and Western Hospitals.*

In 1954, Canadian hospitals had 1,043 beds for every 100,000 of the population. Of this bed capacity, 89.3 p.c. was available in public hospitals, that is, in hospitals that are not operated for profit, that accept all patients regardless of ability to pay, and that are recognized as public hospitals by the province in which they are located. Private hospitals, those that ordinarily restrict their admissions to patients paying for the care provided at rates determined by the management, accounted for 2.4 p.c. of the bed capacity. The remaining 8.3 p.c. was in federal hospitals operated for special purposes related to federal departmental administration such as the care of war veterans, members of the Armed Forces, Indians and immigrants, as well as for quarantine and other purposes.

Of the 2,440,633 admissions in 1954 to Canadian hospitals, 2,349,337 or 96.3 p.c. were to general hospitals, 1.1 p.c. were to mental institutions and 0.7 p.c. to tuberculosis institutions. However, only 46.6 p.c. of the average daily population of all hospitals was in general hospitals. Mental institutions accounted for 39.0 p.c. and tuberculosis institutions for 8.9 p.c. These differences in proportion are explained by the greater turnover of patients in general hospitals where the average stay was approximately ten days as compared with over ten months in tuberculosis institutions. The average stay of patients who were discharged from mental institutions in 1954 was 8.6 months and 25.0 p.c. of those who died in such institutions in 1954 had been there for ten years or more.

Hospital personnel in 1954 numbered nearly 130,000 persons, or about 2.4 p.c. of the total labour force of Canada.

### ***Personal Health Care***

Of the \$1,000,000,000 Canadians spend annually on health care, about \$400,000,000 is expended for hospital services, the most costly single item. General and allied special hospitals account for about two-thirds of this cost and mental and tuberculosis institutions and federal hospitals for the remainder. Prepaid hospital care is provided through province-wide hospital insurance programs in British Columbia and Saskatchewan and through

new University Hospital erected on the campus of the University of Saskatchewan not only provides additional treatment and research facilities but serves as a training centre for junior medical students and other members of the health team.

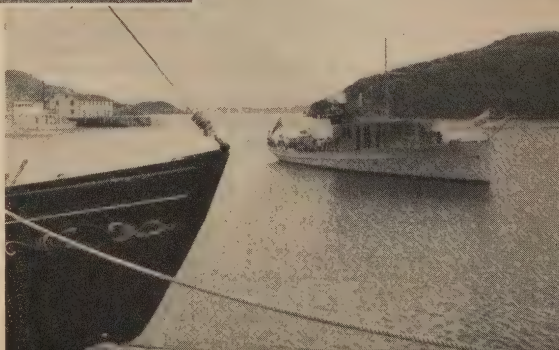


General hospitals—whether large city institutions combining treatment with research and teaching, little hospitals uniting the skills of the doctors in small communities, or outpost hospitals—come into being as they are needed, usually through the efforts of public-spirited citizens. Most of the money that builds, equips and maintains them comes from public subscription, government grants and tax allotments. All of them are devoted to a common objective—the restoration of health and the saving and prolongation of life. Many, serving as health centres, also assist in preserving and raising the physical well-being of their respective communities.



A convalescent hospital serving the district of Rimbey, a community in Alberta of fewer than a thousand persons.

The hospital ship "Lady Anderson", operated by the Province of Newfoundland, serves the Placentia Bay area. It makes about thirty-four ports of call every month.







The Blue Cross for Hospital Care has become a very important factor in the financing of hospitalization. This is in operation all across the country and has an enrollment of over 3,350,000 persons. Each of these files in the Subscriber Register Department contains about 35,000 identification cards, all of which are located immediately

municipal schemes subsidized by the province in Alberta. In Newfoundland, the provincially operated Cottage Hospital Program provides hospital care and physicians' services to large areas of the Island, excluding St. John's. About 20 p.c. of the total population of Canada is covered under public plans and about 40 p.c. to varying degrees under hospital association plans, commercial insurance companies, co-operatives and fraternal organizations.

Most Canadians make private arrangements for physicians' services, with individual payment being made at the time of service. In recent years, however, private insurance plans, administered by both professionally sponsored non-profit and commercial companies, have expanded at a rapid rate. It is estimated that, in 1953, some 30 p.c. of all Canadians were covered to different degrees under these plans. Public medical care is also provided under a variety of arrangements: by the Federal Government to members of the Armed Forces, to veterans for service-connected disability, to sick mariners, and to Indians and Eskimos; by provincial governments to sufferers from specific diseases such as cancer, tuberculosis, mental illness and polio, as well as, in some provinces, to social assistance recipients; and by municipalities to indigents, not otherwise covered, as well as, under "municipal doctor schemes", to residents of certain municipalities in Western Canada.

Most Canadians purchase home-nursing care directly without prepayment by insurance, although public health nursing and groups such as the Victorian Order of Nurses provide services to substantial numbers. Dental care is provided by private arrangements with dentists with almost no prepayment. Drugs to out-of-hospital patients are also purchased privately, with minor exceptions for public assistance recipients in some provinces and those benefiting from federal programs. In-hospital drugs are usually available as benefits under hospital insurance plans.



## Rehabilitation Services

The internationally famous rehabilitation services provided for certain classes of disabled persons by voluntary agencies such as the Canadian National Institute for the Blind, by the federal Department of Veterans Affairs and by Workmen's Compensation Boards have been increasingly buttressed and strengthened by federal and provincial support since the National Conference on the Rehabilitation of Disabled Persons was held in 1951. Since then, co-ordinated programs have been started in most provinces and national and provincial co-ordinators have been appointed, a Medical Rehabilitation Grant has been added to the National Health Grant Program and other grants of the program are being increasingly used for the establishment of rehabilitation services and facilities.

## Medical Research

Medical research activities in Canada have expanded rapidly in the post-war period and Canadian scientists have made many significant contributions to the advancement of knowledge in numerous health fields. In the year ended Mar. 31, 1953, almost \$7,000,000 was spent on medical research, of which sum more than \$3,500,000 was contributed by Federal Government agencies. Federal support for medical research comes from the National Research Council, the Defence Research Board, the Department of Veterans Affairs and from the Department of National Health and Welfare, through the National Health Program. Projects embrace a wide variety of techniques, medical fields and types of diseases. In 1953, over 17 p.c. of all research in Canada related to malignant neoplasms; 7.4 p.c. investigated problems of heart disease; 7.4 p.c. concerned various mental disorders and 7.1 p.c. the arthritic and rheumatic diseases.

## • Welfare

The Welfare needs of Canadians before the turn of the century were met largely by charitable institutions developed usually under private or religious

any research groups are working to combat mental illness. Here a Director of Research in a psychiatric hospital plots stresses and stimuli on a patient who wears electrodes attached to her wrists to record responses on electrical instruments.



auspices. Since that time, however, the trend has been away from institutional care, the emphasis shifting to income maintenance programs and to the provision of services designed to assist individuals in meeting problems characteristic of an increasingly industrialized society.

Social developments during the past thirty years have created welfare and security problems that could be met only at the higher levels of government and it is in federal and joint federal-provincial programs that the greatest expansion has taken place. At the provincial level, too, there has been a substantial broadening of services, particularly for the protection and care of children. Most provinces have delegated a number of welfare responsibilities to the municipalities or to voluntary agencies. General assistance or relief is usually administered at the municipal level and other programs, depending on the size, structure and traditions of the local community, may include the provision of welfare services for children, families, the aged, the ill, transients, and those with acute housing problems. Methods of financing vary considerably but most provinces share the costs of municipal services in organized areas and assume the total cost in unorganized territories.

The expansion of government services has been paralleled by an equally significant development in the voluntary field. Relieved of most of the financial burdens of providing maintenance, voluntary agencies have been in a better position to develop other types of essential community service, both those that are broadly preventive and those designed to aid people in dealing with problems of adjustment and relationship in time of individual or family crisis. Services have been expanded and improved in family welfare and child welfare, including specialized institutional care for children, social work in hospitals and clinics, programs for the aged, correctional care, rehabilitation and recreation. Community chests in some 65 areas centralize the financial campaigns of welfare and related agencies, and welfare councils are promoting the better co-ordination and use of community resources in over 30 Canadian cities. Some agencies are organized regionally and nationally as well as locally, with centralized services to improve and consolidate their activities. The Canadian Welfare Council, a national association of public and private agencies, provides a means of co-operative planning and action across the country and serves as a link between voluntary agencies and between the public and voluntary fields.

The importance and complexity of social welfare, which involves a public expenditure of over \$1,000,000,000 annually, has placed increased emphasis on improving the quality of administration and of services in both the public and private fields.

Most federal and federal-provincial social security programs are under the jurisdiction of the Department of National Health and Welfare or the joint jurisdiction of that Department and the provinces, and are described in the following paragraphs. Certain programs are administered by other federal departments. These include unemployment insurance, by the Unemployment Insurance Commission (*see* p. 110); welfare services for veterans, by the Department of Veterans Affairs (*see* p. 96); services for Indians and Eskimos, by the Departments of Citizenship and Immigration and Northern Affairs and National Resources (*see* p. 31); and the Prairie Farm Assistance Act by the Department of Agriculture (*see* p. 158).

## Federal Programs

*Family Allowances.*—In general, all children under 16 years of age who are resident in Canada are eligible for Family Allowances. The allowances, which were established in 1945, are paid by the Federal Government, involve no means test and are not considered as income for tax purposes. Allowances are paid at the monthly rate of: \$5 for children under six years; \$6 for children six to nine years; \$7 for children ten to twelve years; and \$8 for children thirteen to fifteen years.

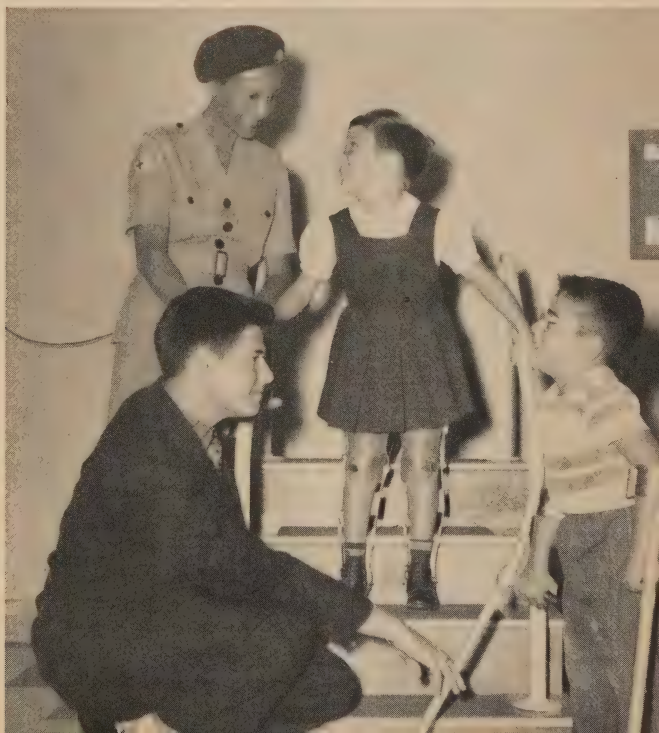
In June 1955, allowances were paid in respect of some 5,225,000 children in 2,213,000 families and expenditures totalled about \$378,000,000 for the year. The average allowance payment per family ranged from \$12.53 to \$17.93 and the average payment per child from \$5.98 to \$6.07 in the different provinces.

*Old Age Security.*—A pension of \$40 a month is paid by the Federal Government to all persons aged 70 or over who have been resident in Canada at least twenty years. The pension is supplemented in some provinces on a means-test basis. The pension is financed through a 2-p.c. sales tax, a 2-p.c. tax on net corporation income and, subject to a limit of \$60 a year, a 2-p.c. tax on individual net taxable incomes. Taxes have not been sufficient to meet pension payments since the commencement of the program in 1952 and the difference has been met by loans or grants from general revenue. In June 1955, pensions were paid to some 754,000 persons; expenditures were about \$360,000,000 in 1955.

## Federal-Provincial Programs

*Old Age Assistance.*—Assistance of up to \$40 a month (\$30 in Newfoundland) is paid to needy persons aged 65 to 69 years who have been resident in Canada for at least twenty years. The Federal Government reimburses the province for 50 p.c. of \$40 per month or of the allowance, whichever is less.

Red Cross worker from Jamaica and a medical student from Uruguay, delegates attending a Junior Red Cross Study Centre at Queen's University, visit Sunny View, special school for crippled children.





The province administers the program and in some cases provinces or municipalities supplement this amount. Total annual income, including assistance, cannot exceed \$720 for a single person, \$1,200 for a married couple, or \$1,320 if a spouse is blind. In June 1955, some 94,000 persons or 21.0 p.c. of the population aged 65 to 69 were in receipt of Old Age Assistance; the federal contribution toward that assistance was about \$21,000,000 in 1955.

*Blindness Allowances.*—Allowances of up to \$40 a month are paid to needy persons who are blind, aged 18 or over and who have been resident in Canada for at least ten years. The Federal Government pays 75 p.c. of \$40 per month, or of the allowance, whichever is less. The province administers the program and in some cases provinces or municipalities supplement the allowance. Total annual income, including the allowance, may not exceed \$960 for a single person, \$1,160 for a single person with one or more dependent children, \$1,560 for a married couple, one of whom is blind and \$1,680 for a married couple when both are blind. In June 1955, there were some 8,000 persons in receipt of the allowance. The annual federal contribution towards blindness allowances is about \$2,880,000.

*Disabled Persons Allowances.*—Allowances of up to \$40 a month were commenced in 1955 to needy persons who are totally and permanently disabled, aged 18 or over and resident in Canada for at least ten years. The Federal Government pays 50 p.c. of \$40 per month or half the allowance, whichever is less. The province administers the program and in some cases provinces or municipalities supplement the allowance. Total annual income, including the allowance, may not exceed \$720 a year for a single person, \$1,200 for a married couple or \$1,320 where the spouse is blind. By August 1955, there were 16,762 recipients of allowances. The Federal Government's contribution for that month was \$605,000.

*Unemployment Assistance.*—Federal aid to provincial governments for unemployment assistance was introduced in 1955, subject to agreements with each province joining in the scheme. Under this program the Federal Government will pay one-half the cost of assistance for the number of needy unemployed receiving aid in each province in excess of 0.45 p.c. of the provincial population, with some adjustments for special situations. The starting point of 0.45 p.c. is used as a measure of the basic load of unemployables,



Blind X-ray technicians, trained to perform the responsible task of developing film work by sense of touch in total darkness.



*A cottage village made up of low-rental houses of charm and comfort has been built by the Kiwanis Club of Victoria, B.C., for senior citizens living on pensions. The project won for its designer, Charles E. Craig of Victoria, the top award of the 1955 Massey Medals for Architecture.*

thus making it unnecessary for the Federal Government to distinguish between employables and unemployables. Payments to the unemployed are to be made by provincial and municipal authorities and the scale and condition of payments are to be determined by them.

### **Provincial Programs**

*Mothers' Allowances.*—Allowances on behalf of needy mothers and their dependent children are provided by all provinces. Assistance is granted to widows, mothers with husbands in mental hospitals and, in nine provinces, to mothers who are deserted or whose husbands are disabled. Some provinces provide also for mothers with husbands in penal institutions and to divorced, separated and unmarried mothers. To be eligible an applicant must be caring for one or more children of eligible age, and must meet specified conditions of character or competence, need, residence and, in six provinces, of nationality. The maximum monthly allowance payable to a mother with one child varies by province from \$25.00 to \$69.50. An additional amount is paid for each subsequent child and in some provinces for a disabled father in the home. Certain provinces have established a maximum amount payable to a family and the majority grant supplementary aid where special need is apparent. As at Mar. 31, 1954, approximately 39,500 families with some 107,300 children were receiving mothers' allowances. The total cost of these allowances for the fiscal year 1954 was approximately \$21,578,000.

*Widows' Pensions.*—In Alberta, under the Widows' Pensions Act, pensions of up to \$40 a month may be paid, subject to certain conditions of need and residence, to widows aged 60 to 64 and to wives in this age group whose husbands are committed to mental hospitals or who have deserted.

*Workmen's Compensation.*—While Workmen's Compensation may be considered a welfare program, the subject falls more clearly within the general field of labour and is therefore dealt with under that heading on p. 108.

## ***Welfare Institutions***

The latest figures available on welfare institutions are for 1951. In that year there were 533 charitable, benevolent and welfare institutions operating in Canada, including 218 homes for adults, 102 homes for adults and children, 170 orphanages and Children's Aid Societies, and 43 day nurseries. Welfare organizations that do not operate institutions are not included in this number nor are licensed boarding homes for welfare patients. Of the total institutions reporting, 52 p.c. were operated by religious organizations, the provincial percentages of institutions thus operated ranging from a high of 88 in Quebec to a low of 32 in Nova Scotia, Ontario and British Columbia. Boards operated about 30 p.c., the provincial percentages ranging from 44 in Ontario to 10 in Quebec. The institutions, with almost 40,000 persons under care, operated with a total full-time staff of 9,573 and part-time personnel numbering 1,041.

## **• Veterans Affairs**

Most of Canada's war veterans have been assimilated into civilian life, the assistance now required being mainly concerned with allowances, medical treatment, land settlement, rehabilitation and welfare, which is the responsibility of the Department of Veterans Affairs, and the adjustment and payment of pensions, which is under the jurisdiction of the Canadian Pension Commission. The head offices of both the Department and the Commission are in the Veterans Memorial Building at Ottawa but administration is decentralized as far as possible through offices located in the major population centres across the country and through the overseas office in London, England.

At the end of December 1955, there were 160,438 disability pensions being paid to veterans and 33,954 pensions being paid to the dependants of deceased service men. The year's expenditure for these pensions amounted to approximately \$130,264,000.

An amendment to the War Veterans Allowance Act, effective Apr. 1, 1955, increased the maximum monthly allowances to \$60 for single persons and \$108 for those who are married. The permissible annual income ceilings were also raised to \$840 and \$1,440, respectively. All veterans who served in a theatre of war, in both wars, or who are in receipt of disability pensions are eligible for these allowances at age 60, or earlier if they become unemployable. Dependants of such veterans are also eligible. When need exists, the allowances may be supplemented from an Assistance Fund up to the income ceilings set by the Act. At the end of 1955, there were 50,424 WVA recipients, and the year's expenditure for this purpose was \$39,487,000.

All matters of interpretation, appeals and rulings relative to the War Veterans Allowance Act are looked after by the War Veterans Allowance Board which reports to Parliament through the Minister of Veterans Affairs. A District Authority receives and adjudicates on applications and awards in each of the DVA districts but his decision may be appealed or reviewed by the Board.

Medical treatment is provided in DVA hospitals and in public general hospitals and other institutions under contractual arrangements. At Dec. 31, 1955, the Department was operating 11 active-treatment hospitals with 8,720 beds, two health and occupational centres with 365 beds, and three homes for



veterans who, because of age or physical handicap, require domiciliary care. All of the Department's active-treatment hospitals are approved for teaching in internal medicine and general surgery and seven are also approved for advanced post-graduate teaching in specialties.

In 1955 the Department was engaged in about 85 medical research projects, 20 of which were directly related to geriatrics. This is a subject in which the Department is vitally interested and is in a unique position to investigate as it is responsible for the health and well-being of a large number of older veterans.

Substantial numbers of veterans are still being assisted to settle on the land, either as farmers, small holders, or commercial fishermen. At the end of 1955 the cumulative total of veterans who had received such assistance was 71,600 and the public investment made on their behalf was approximately \$339,000,000. Their payment record is very satisfactory. The Veterans' Land Act, under which this assistance is given, was amended in 1954 to provide for additional loans to new veterans being established as well as for full-time farming veterans already established. Provision was also made for granting financial, technical and other necessary assistance to veterans who are approved for a loan under the National Housing Act and who are willing and able to undertake contracts to build their own homes. During the period Aug. 1, 1954, when the new Act came into force, and Dec. 31, 1955, 515 such loans were approved and 488 contracts let to veterans to build their own homes on city-size lots.

The need for rehabilitation services for veterans has declined over the years but the Department, through its Welfare Services Branch, continues to take a special interest in the welfare of veterans and dependants who are, or may become, beneficiaries under the federal legislation for veterans. This includes the training and placement of seriously disabled veterans, the employment of older veterans and assistance for the children of war dead to obtain advanced education. Veterans and their dependants may bring any kind of problem for help. The Branch maintains close liaison with community welfare agencies so that problems that cannot be resolved through the Veterans Charter may be referred to the proper body.

Veterans' Land Act  
farmer harvesting a  
forage crop. The  
small farmer avoids  
over-capitalization in  
farm machinery by  
choosing versatile,  
matched equipment.





*Forest operations of individual pulp and paper mills are thoroughly modern undertakings in which up-to-date means of communication are used to direct tens of thousands of men over areas measured in tens of thousands of square miles.*

# Labour

CANADA'S industries have experienced a period of spectacular development since the turn of the century. In 1901 industry employed fewer than two million persons. Today well over five and one-half million Canadians, men and women, ranging from unskilled labourers to highly trained technicians and executives and from labour on the farm to workers in large manufacturing plants, provide the nation with goods and services.

The productive capacity of the Canadian economy has greatly increased. New raw materials have come into use, such as oil, aluminum and titanium, making possible the production of goods not available before. Synthetic materials like nylon and artificial rubber have become essential to everyday life. New machines have been developed to aid the worker in producing more and better goods with less effort. The present era of electronics and automation is relieving manpower of repetitive and often strenuous jobs, and advancing techniques and organizational methods in manufacturing and distribution have also had their effect on bettering production and extending services.

These developments, together with higher wages, better working conditions, higher educational standards and greater emphasis on vocational training, have helped to raise the standard of living for the whole community of workers. Advances in human relations in industry have also assisted the Canadian worker to reach a fuller participation in the national life.

The pace of development over the past fifty years has not, of course, been steady. It was slowed down or interrupted on several occasions. Today, however, a better understanding of the operation of the economy together with the institution of new social assistance such as unemployment insurance, workmen's compensation and old age security provides a more even flow of income to Canadians and this, in turn, helps to balance economic development.

Seasonal unemployment caused by cold weather and to some extent by consumer buying habits still results in serious annual loss to the Canadian economy. Some winter slow-down is unavoidable, but it is possible by concerted effort to reduce the extent of winter unemployment. New techniques and materials have made winter construction work more practicable and the Government is timing its contracts so that as much work as possible may be done during the winter months. Co-operation by industry and the public can make this program highly effective in keeping winter unemployment to a minimum.

Development in the field of labour has been assisted by legislation at both federal and provincial levels. Laws have been enacted to set minimum standards for hours of work, wages and many other conditions of employment. Most Canadian workers, however, enjoy conditions of employment far better than those required by law. The right of workers to belong to labour unions of their own choosing is protected by law. Union membership has grown rapidly, particularly since 1940. Today about 1,300,000 persons are members



of unions. Through their organizations they have negotiated more than 6,500 collective bargaining agreements which generally embody joint labour-management decisions on work-rules and conditions of employment. The agreements are usually re-negotiated each year, sometimes with the assistance of government conciliation services and very often without work stoppages. Only about one-seventh of one per cent of the estimated total working time in all Canadian industry was lost by strike action in 1954.

## The Labour Force

The labour force of Canada, as measured by sample surveys conducted by the Dominion Bureau of Statistics, includes those people who have jobs plus those who do not have jobs and who are looking for work. "Job" in this sense means work for pay or profit, or unpaid work which contributes to the running of a farm or business operated by a relative. Thus a coal-miner or a shopkeeper is considered to be in the labour force but a housewife or a student is not. The labour force is not a fixed group of people. It is constantly changing, as new workers enter and old ones leave.

### *Industrial Distribution of Persons with Jobs, by Sex, Week Ended Oct. 22, 1955*

(Thousands of persons 14 years of age or over)

Industry	All Persons with Jobs			Paid Workers		
	Male	Female	Both Sexes	Male	Female	Both Sexes
Agriculture.....	745	29	774	88	1	95
Forestry.....	136	1	139	115	1	117
Fishing and trapping.....	19	1	20	1	1	1
Mining and quarrying <sup>2</sup> .....	112	1	116	110	1	114
Manufacturing.....	1,132	299	1,431	1,070	294	1,364
Construction.....	415	1	422	348	1	354
Transportation <sup>3</sup> .....	349	56	405	321	55	376
Public utilities.....	58	1	63	58	1	63
Trade.....	582	257	839	448	217	665
Finance, insurance <sup>4</sup> .....	105	82	187	91	81	172
Service.....	569	512	1,081	481	472	953
<b>Totals.....</b>	<b>4,222</b>	<b>1,255</b>	<b>5,477</b>	<b>3,136</b>	<b>1,143</b>	<b>4,279</b>

<sup>1</sup> Fewer than 10,000.    <sup>2</sup> Includes oil wells.    <sup>3</sup> Includes storage.    <sup>4</sup> Includes real estate.

About three out of four people in the labour force are male and almost one-half of those in the labour force are from 25 to 44 years of age; the average female worker is considerably younger than the average male worker. Occupationally, one worker out of seven is in agriculture; geographically, about two out of three live in Ontario or Quebec. The percentage of the labour force to the total population 14 years of age or over is lower in Newfoundland, the Maritime Provinces and British Columbia than in the rest of the country. In non-agricultural industries, which employ 4,703,000 persons of whom one-quarter are women, about 88 p.c. of the men and 93 p.c. of the women are paid employees. In agriculture, on the other hand, paid employees form a relatively small element—hardly more than one worker in seven, even during harvest season.



About 5,000 nurses are graduated each year from some 150 hospital training schools across Canada, which have a constant under-graduate complement of well over 15,000. Although many of these graduates do not immediately enter the labour force, most of them sooner or later take their places among the professional group of workers.

### Occupational Distribution of Persons with Jobs, by Sex, Week Ended Oct. 22, 1955

(Thousands of persons 14 years of age or over)

Occupation	All Persons with Jobs			Paid Workers		
	Male	Female	Both Sexes	Male	Female	Both Sexes
Managerial.....	415	47	462	188	16	204
Professional.....	269	159	428	232	155	387
Clerical.....	256	379	635	256	373	629
Transportation.....	358	1	361	335	1	338
Communication.....	44	35	79	44	35	79
Commercial.....	220	146	366	217	129	346
Financial.....	49	1	51	36	1	37
Service.....	218	253	471	200	227	427
Agricultural.....	753	29	782	96	1	103
Fishing, logging and trapping.....	124	1	124	96	1	96
Mining.....	73	1	74	72	1	73
Manufacturing and mechanical <sup>2</sup> ...	780	182	962	752	178	930
Construction.....	332	1	333	285	1	286
Labourers and unskilled workers (not agricultural, fishing, logging or mining).....	331	18	349	327	17	344
<b>Totals.....</b>	<b>4,222</b>	<b>1,255</b>	<b>5,477</b>	<b>3,136</b>	<b>1,143</b>	<b>4,279</b>

<sup>1</sup> Fewer than 10,000.  
with electric-power production.

<sup>2</sup> Includes stationary enginemmen and occupations associated

**Women in Industry.**—Employment opportunities for women have expanded with the growth of the Canadian economy. The most notable developments in recent years are the increase in the employment of married women, the

concentration of growth in those occupations in which women have been traditionally employed and the reduction in the proportion of teen-age girls in the labour force. Of all the women with jobs in Canada at Oct. 22, 1955, 643,000 were single, 484,000 were married, and 128,000 were widowed, divorced or legally separated.

The proportion of working women in the older age groups has been increasing rapidly. The greatest growth has taken place in the age group 45 to 64, although the largest number are still to be found in the 25 to 44 age group. The age distribution of women with jobs at Oct. 22, 1955, was: 14-19 years, 209,000; 20-24 years, 246,000; 25-44 years, 520,000; 45-64 years, 257,000; 65 years or over, 23,000.

### *Women in the Canadian Labour Force, Oct. 22, 1955*

Region	Women in Population 14 Years or Over <sup>1</sup>	Women in Labour Force <sup>2</sup>	P.C. of Women in Labour Force	P.C. of Women to Total Labour Force in Region
	No.	No.		
Atlantic.....	567,000	109,000	19.2	20.2
Quebec.....	1,518,000	360,000	23.7	22.5
Ontario.....	1,851,000	518,000	28.0	25.5
Prairie.....	923,000	187,000	20.3	18.9
British Columbia.....	458,000	106,000	23.1	23.2
<b>Totals.....</b>	<b>5,317,000</b>	<b>1,280,000</b>	<b>24.1</b>	<b>22.8</b>

<sup>1</sup> Excludes women inmates in institutions and Indian women on reserves.  
with jobs and those seeking work.

<sup>2</sup> Women

### *Employment in 1955*

The DBS monthly surveys of industrial employment and payrolls recorded a slight improvement in the period Jan. 1 to Sept. 1, 1955, over the same months of 1954. The index of employment (1949=100) averaged 110.5 which was 1.4 p.c. above the 1954 average and, except for the 1953 figure of 112.6, was the highest on record for the time of year. The 1955 index of industrial payrolls at 156.6 and the average weekly wages and salaries at \$60.56 have never been exceeded.

Moderate increases in employment were reported in the 1955 period in all provinces except Nova Scotia and Saskatchewan where the declines were small. The most marked of the increases were in British Columbia, Alberta and New Brunswick.

Employment in manufacturing industries moved steadily upward during the 1955 period, except for a minor recession reported at Aug. 1, and by Sept. 1 had advanced more than 10 p.c. since the first of the year. However, the monthly indexes were all lower than those for the corresponding months of 1954 until May 1 when they continued at the same or a higher level, so that the averages for the two periods Jan. 1 to Sept. 1, 1955 and 1954 were about the same. An easing of employment in plants producing durable goods was offset by a gain in factories manufacturing non-durable goods.

Employment in each of the non-manufacturing groups of industries surveyed was, on the whole, brisker in 1955 than in 1954. The logging index



rose by 8.2 p.c. although it was below its position in 1953 and preceding years since 1950. Increases in the other industrial groups were rather small.

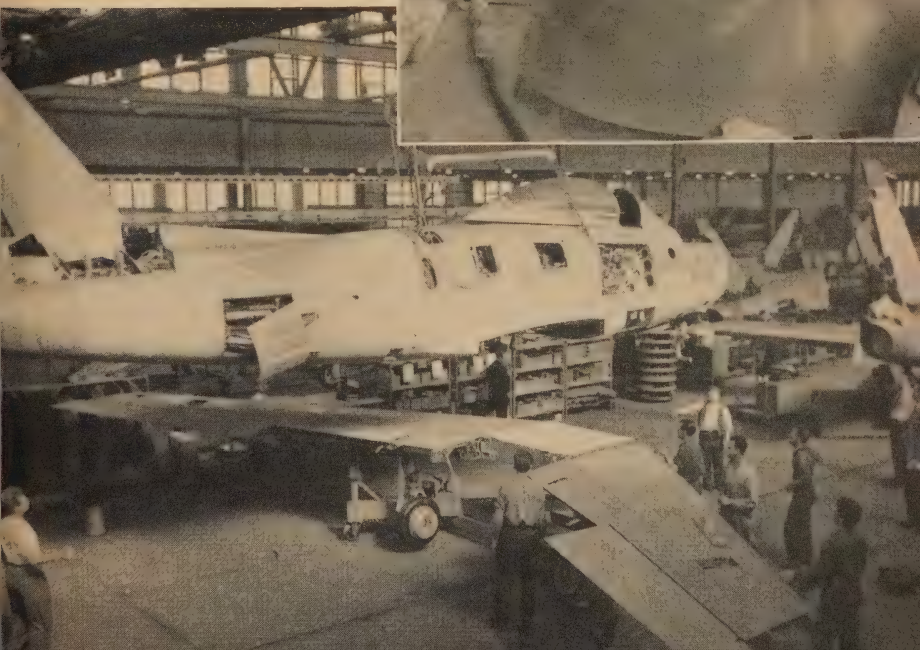
There were widespread though generally moderate advances in the payroll indexes in all provinces and in each of the leading industrial divisions, including those areas and industries in which 1955 levels of employment were a little lower than in 1954. Average weekly wages and salaries declined slightly in Newfoundland mainly because of a reduction in premium overtime work in construction, but they were higher in all the other provinces. The trend was also upward in most industrial groups and new all-time highs were established in many industries and areas.

Average hours worked in manufacturing during the 1955 period were higher than in the same months of 1954. Average hourly earnings also continued upward, following the general trend in evidence since the record was

*The aircraft and aircraft parts industry which was of minor importance in Canada in 1946 now provides the livelihood of more than 38,000 employees.*

*Sabre snout starts as fibreglass cloth which is impregnated with resin, molded and oven-cured. Final product is extremely hard but very light.*

*Fuselage of an F-86E Sabre jet is joined to swept-back wings on the assembly line at the Canadair plant, Montreal.*



started late in 1944. The average for the 1955 period was 144.3 cents which was 2.4 p.c. above the figure for 1954. The average weekly wage, also a peak figure, was \$58.94, an amount \$1.99 higher than the average for Jan. 1 to Sept. 1, 1954.

### *Index Numbers of Employment and Payrolls, and Average Weekly Wages and Salaries, by Province, 1954 and 1955*

(1949 = 100)

NOTE.—Figures are for the period Jan. 1 to Sept. 1.

Province	Index Numbers of—						Average Weekly Wages and Salaries		
	Employment			Payrolls					
	1954	1955	P.C. Change	1954	1955	P.C. Change	1954	1955	P.C. Change
							\$	\$	
Newfoundland.....	124.2	125.8	+ 1.3	180.1	181.1	+ 0.6	54.45	53.86	— 1.1
Prince Edward Island..	106.9	109.3	+ 2.2	141.0	148.8	+ 5.5	44.49	45.92	+ 3.2
Nova Scotia.....	96.7	95.4	— 1.3	128.2	129.2	+ 0.8	49.61	50.70	+ 2.2
New Brunswick.....	96.7	100.8	+ 4.2	128.3	138.3	+ 7.8	50.19	51.95	+ 3.5
Quebec.....	107.7	109.5	+ 1.7	147.3	154.9	+ 5.2	56.18	58.05	+ 3.3
Ontario.....	110.8	111.6	+ 0.7	152.4	159.3	+ 4.5	60.90	63.10	+ 3.6
Manitoba.....	103.6	103.7	+ 0.1	136.8	141.3	+ 3.3	56.16	57.93	+ 3.2
Saskatchewan.....	116.2	115.2	— 0.9	156.4	160.6	+ 2.7	55.74	57.60	+ 3.3
Alberta.....	125.4	130.0	+ 3.7	168.4	180.3	+ 7.1	59.61	61.50	+ 3.2
British Columbia.....	105.0	108.8	+ 3.6	147.7	156.1	+ 5.7	64.18	65.38	+ 1.9
<b>Composite.....</b>	<b>109.0</b>	<b>110.5</b>	<b>+ 1.4</b>	<b>149.5</b>	<b>156.6</b>	<b>+ 4.7</b>	<b>58.66</b>	<b>60.56</b>	<b>+ 3.2</b>

### *Index Numbers of Employment and Payrolls, and Average Weekly Wages and Salaries, by Industrial Group, 1954 and 1955*

(1949 = 100)

NOTE.—Figures are for the period Jan. 1 to Sept. 1.

Industrial Group	Index Numbers of—						Average Weekly Wages and Salaries		
	Employment			Payrolls					
	1954	1955	P.C. Change	1954	1955	P.C. Change	1954	1955	P.C. Change
							\$	\$	
Forestry (chiefly logging).....	85.1	92.1	+ 8.2	127.5	139.0	+ 9.0	59.84	60.30	+ 0.8
Mining.....	108.8	112.3	+ 3.2	148.1	158.7	+ 7.2	69.91	72.55	+ 3.8
Manufacturing.....	108.1	108.0	— 0.1	149.8	155.7	+ 3.9	60.66	62.98	+ 3.8
Durable goods.....	116.6	115.6	— 0.9	161.2	166.1	+ 3.0	64.92	67.42	+ 3.9
Non-durable goods..	100.7	101.6	+ 0.9	138.6	145.4	+ 4.9	56.40	58.62	+ 3.9
Construction.....	106.3	109.0	+ 2.5	156.2	161.6	+ 3.5	60.91	61.43	+ 0.9
Transportation, storage and communication..	108.3	109.4	+ 1.0	140.6	146.2	+ 4.0	62.29	64.09	+ 2.9
Public utility operation	114.6	118.2	+ 3.1	162.6	174.5	+ 7.3	67.70	70.26	+ 3.8
Trade.....	113.4	116.1	+ 2.4	155.0	163.2	+ 5.3	50.59	52.20	+ 3.2
Finance, insurance and real estate.....	126.3	132.1	+ 4.6	160.6	175.2	+ 9.1	53.67	56.03	+ 4.4
Service.....	110.9	113.4	+ 2.3	147.3	156.8	+ 6.4	38.49	40.23	+ 4.5
<b>Composite.....</b>	<b>109.0</b>	<b>110.5</b>	<b>+ 1.4</b>	<b>149.5</b>	<b>156.6</b>	<b>+ 4.7</b>	<b>58.66</b>	<b>60.56</b>	<b>+ 3.2</b>

## Monthly Indexes of Employment in Manufacturing, 1949-55

(1949=100)

Month	1949	1950	1951	1952	1953	1954	1955
January 1.....	98.9	97.2	103.7	104.4	111.4	108.0	103.2
February 1.....	98.8	96.9	104.9	105.3	111.9	108.3	103.6
March 1.....	99.0	97.5	105.9	106.5	112.7	108.3	105.7
April 1.....	99.0	97.8	107.3	107.0	112.9	107.9	106.5
May 1.....	99.1	98.1	108.0	107.3	113.1	107.3	107.3
June 1.....	99.9	99.7	109.2	108.5	113.4	107.7	109.3
July 1.....	101.0	101.5	110.2	108.8	114.7	108.8	111.6
August 1.....	100.5	102.1	110.3	110.3	114.4	108.0	111.4
September 1.....	101.8	103.8	110.3	112.8	115.6	108.3	114.0
October 1.....	101.6	105.5	110.4	114.2	115.2	108.1	113.4
November 1.....	100.6	105.4	108.5	113.6	113.1	106.3	112.8
December 1.....	99.6	105.3	107.5	113.5	110.9	105.4	112.3
Annual Average...	100.0	100.9	108.0	109.3	113.3	107.7	109.3

## Average Hours and Earnings in Manufacturing, by Month, 1954 and 1955

Month	Average Hours Worked		Average Hourly Earnings		Average Weekly Wages	
	1954	1955	1954	1955	1954	1955
	No.	No.	cts.	cts.	\$	\$
January 1.....	38.5	39.3	140.4	142.8	54.05	56.12
February 1.....	40.7	41.0	140.4	142.7	57.14	58.51
March 1.....	41.1	41.2	140.6	143.5	57.79	59.12
April 1.....	40.9	41.1	141.0	144.3	57.67	59.31
May 1.....	40.6	41.2	141.8	145.4	57.57	59.90
June 1.....	39.8	41.0	142.2	145.5	56.60	59.66
July 1.....	40.5	40.9	141.6	145.0	57.35	59.31
August 1.....	40.7	40.8	140.9	145.1	57.35	59.20
September 1.....	40.9	41.2	139.5	143.8	57.06	59.25
October 1.....	41.3	41.5	139.7	144.8	57.70	60.09
November 1.....	41.3	41.7	140.5	145.4	58.03	60.63
December 1.....	41.2	41.6	141.2	146.1	58.17	60.78
Annual Average.....	40.6	41.0	140.8	144.5	57.16	59.25

Apprentice  
technician learns  
trade under the  
supervision of an  
experienced  
technician.





## Wage Rates, Hours of Labour and Working Conditions

Index numbers of wage rates by industry are compiled by the Department of Labour but these indexes measure only the trend in rates of wages of non-office employees and cannot be used to compare wage levels in one industry with those in another. The basic statistics are average straight-time wage rates or average straight-time piece-work earnings for selected occupations by industry and do not, therefore, include overtime or other premium payments. The information is collected by means of a survey of employers conducted as at October 1 each year, with a sample survey in April and October to determine the intervening trend.

### Index Numbers of Wage Rates for Certain Main Groups of Industries, 1901-54

(Rates in 1949 = 100)

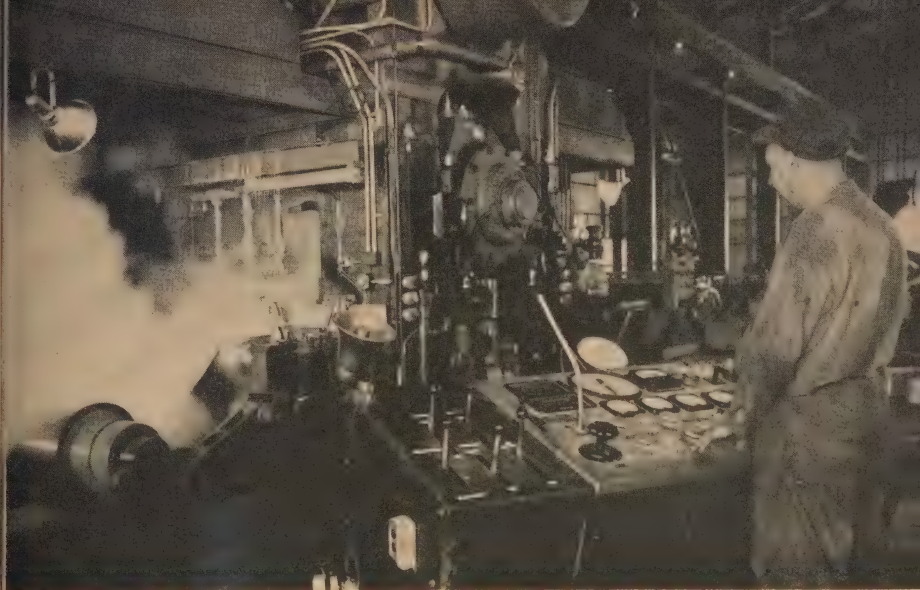
Year	Logging	Coal Mining	Metal Mining	Manufacturing	Construction	Steam Railways	Telephones	Personal Service	General Average <sup>1</sup>
1901.....	23.8	24.2	33.8	—	19.2	19.8	—	—	18.6
1905.....	26.4	25.2	32.5	—	23.2	21.4	—	—	21.1
1910.....	29.6	27.5	34.6	—	27.6	25.9	—	—	24.4
1915.....	28.3	29.9	36.6	23.0	32.2	29.3	—	24.4	26.0
1920.....	65.9	57.8	56.9	47.0	57.5	63.6	60.9	45.2	52.3
1925.....	44.0	49.0	51.6	42.4	54.2	53.6	58.8	50.8	45.8
1930.....	45.1	49.5	51.9	43.8	64.7	58.8	62.5	52.3	48.8
1935.....	33.8	48.4	51.2	39.9	50.8	52.9	61.4	49.5	43.2
1940.....	48.5	52.1	56.9	47.9	56.7	58.8	66.9	54.1	50.8
1945.....	70.9	74.6	70.9	67.2	71.2	73.7	82.9	69.4	69.3
1950.....	97.0	102.8	106.8	106.1	104.8	105.1	104.8	102.9	105.5
1951.....	109.6	111.1	121.6	120.3	118.6	121.9	115.7	110.6	119.1
1952.....	133.3	124.0	130.1	128.4	128.6	136.8	128.4	117.6	127.7
1953.....	135.5	124.0	132.3	134.6	136.2	137.2	136.6	123.3	133.6
1954.....	138.0	123.5	136.7	138.5	140.0	137.8	147.6	128.6	137.9

<sup>1</sup> Includes other main industries not shown in this table.

The index numbers reveal a general increase in wage rates from 1949 to 1953 of 33.6 p.c.; from October 1952 to October 1953 the increase was 4.6 p.c.; from October 1953 to October 1954, 3.2 p.c.; and from October 1954 to April 1955, 0.6 p.c.

The trend toward the 40-hour week, usually a five-day schedule, continued between April 1954 and April 1955. In the latter month, 58 p.c. of the 765,000 plant workers in manufacturing establishments surveyed were on a work week of 40 hours or less and 84 p.c. were on a five-day week. Of the 196,000 office employees covered in manufacturing, 60 p.c. were on a work week of 37½ hours or fewer in April 1955 as compared with 56 p.c. a year before. The proportion of office employees on a five-day week (90 p.c.) was practically unchanged during the year.

With regard to vacations, the 1955 survey revealed a continuation of two tendencies that had become apparent in the 1954 survey. One was a trend toward shorter service requirements for two-week and three-week vacations. The other was an increase in the practice of granting vacations of three weeks or longer. The proportion of plant workers in manufacturing who were in establishments granting two-week vacations after various periods of service was 92.4 p.c. in April 1955 as compared with 89.2 p.c. in October 1951. At



*An automatic "brain" controls the process of thinning out steel strip after it can no longer be reduced by hot rolling. The operator stands at the desk where he can start and stop the mill and control speed, tension and thickness.*

the earlier date, only 40 p.c. of plant employees were granted two-week vacations after service of three years or less, whereas in April 1955 this proportion had risen to 54 p.c. The proportion of plant employees in establishments granting three-week vacations was 60 p.c. in April 1955 as compared with 54 p.c. a year earlier. Most plant workers who receive vacations of three weeks do so after 15 years of service and the proportion with longer qualifying requirements has diminished steadily in the years preceding 1955. Almost 99 p.c. of office workers in manufacturing enjoyed annual vacations of two weeks in 1955, and in the vast majority of cases the qualifying period was one year or less. Over 69 p.c. of office workers may become eligible for vacations of three weeks, usually after 15 years of service. About 7 p.c. of plant workers and a slightly higher proportion of office workers were in establishments that reported four-week vacations, usually granted after 25 years of service.

Over 47 p.c. of plant employees received eight paid statutory holidays and an additional 9 p.c. received nine or more. Almost 82 p.c. of office employees enjoyed eight or more statutory holidays.

Establishments employing slightly more than 61 p.c. of the plant workers in manufacturing reported having pension plans for their non-office employees. The proportion of office employees was almost 75 p.c. Group life-insurance plans were available in establishments employing 85 p.c. of plant employees and 90 p.c. of office employees. Some type of plan providing cash compensation for wage loss caused by illness was available to most employees. Plans providing hospitalization benefits were available in establishments employing 86.5 p.c. of plant workers and 91 p.c. of office workers. Other plans provided for surgical benefits and for physician services both in and out of hospital. The combination of services provided under various plans varied as did the size of worker and employer contributions.

## ***Labour Legislation***

**Provincial Legislation.**—Provincial labour laws may be grouped under the following headings: safety laws; laws providing compensation for employment injury; laws regulating hours, providing for paid vacations and establishing a minimum wage; laws governing collective bargaining and industrial disputes; laws providing for apprenticeship training; laws requiring examination and certification of certain tradesmen; and laws forbidding discrimination in employment.

In all provinces in which mining is carried on, laws designed to create the safest possible working conditions in mines are in effect. Factories Acts seek to provide control over the working environment in a large part of industry.

Under a workmen's compensation law in each province a worker who is disabled by an industrial accident or a disease caused by the nature of his employment is entitled to compensation. This is based on the extent of his disability and the amount of his earnings, subject, in respect of earnings, to a specified percentage rate (which may be 66  $\frac{2}{3}$ , 70 or 75, depending on the province) and an annual ceiling of \$4,000 or less. In fatal cases, widows, children or other dependants are awarded fixed monthly sums. Compensation and medical aid are payable from an accident fund to which employers are required to contribute and which provides a system of mutual insurance.

Five provinces have general hours-of-work laws. These either limit daily and weekly hours to eight and 48 or fewer, as in Alberta, British Columbia and Ontario, or require the payment of overtime rates after specified limits, as in Manitoba and Saskatchewan. In seven provinces, working hours in some industries are regulated through industrial standards or similar laws under which the wages and hours reached by agreement in a representative section of the industry may be declared by Order in Council to apply to all employers and workers in the industry and area.

Annual vacations with pay of one or two weeks are provided by law in seven provinces. A Board with minimum-wage-fixing powers has been set up in every province but Prince Edward Island and most industrial workers are protected by a minimum wage set by law, of particular importance where prevailing rates are low and where workers are unorganized.

To promote collective bargaining and the settlement of disputes in undertakings within provincial jurisdiction, all provinces have labour relations Acts. Under these Acts an employer is required to bargain with a trade union which has been certified as bargaining agent for his employees for the conclusion of a collective agreement to establish conditions of employment binding on both parties for the duration of the agreement. Every agreement must contain a grievance procedure which may be invoked if any dispute arises out of the terms of the agreement. A strike or lockout is forbidden while an agreement is in effect. If efforts to obtain an agreement are unsuccessful, government conciliation services are available and a strike or lockout is prohibited until the procedure for settlement set out in the Act has been carried out.

Apprenticeship laws in all provinces provide for the training of young people in designated skilled trades through a combination of on-the-job training and class instruction. Most provinces have agreements with the Federal Government for financial assistance in promoting apprenticeship. In a few provinces legislation is in effect requiring tradesmen in certain



designated trades to hold certificates of competency, without which they may not engage in the trade.

Equal pay laws in British Columbia, Ontario and Saskatchewan require women to be paid at the same rate as men when they do the same or comparable work in the same establishment, and fair employment practices laws in Manitoba, Nova Scotia and Ontario prohibit discrimination in hiring and employment on grounds of race, creed, colour or national origin.

**Federal Legislation.**—Under a federal law, a system of unemployment insurance covers most workers in Canada and a nation-wide free employment



*Officers of six railway labour organizations and officers of the Canadian railway companies formed a Board in 1918 with a view to avoiding disputes or misunderstandings that would tend to lessen the efficiency of transport service in Canada. The Board has continued in existence since that time and functions so smoothly that only those close to the railway industry are aware of its existence.*

service is available to all workers and employers (*see* p. 110). The Vocational Training Co-ordination Act authorizes the Minister of Labour to co-operate with the provinces in carrying on various types of vocational training (*see* p. 112). The Canada Shipping Act sets standards for the welfare and safety of seamen. Two federal laws provide compensation for workers injured in their employment—the Merchant Seamen Compensation Act applying to seamen not covered by a provincial workmen's compensation law and the Government Employees Compensation Act applying to Federal Government employees.

Fair wages legislation requires contractors for federal public works and government equipment and supplies to pay wages generally accepted as current in the district. Hours must be limited to eight a day and 44 a week or, on supplies contracts, to those fixed by the custom of the trade in the district.

A Fair Employment Practices Act, applicable to industries under federal jurisdiction, forbids an employer to discriminate against any person seeking employment or already in his employ because of his race, national origin, colour or religion and also forbids a trade union to discriminate on any of these grounds against any person with regard to membership.

The Industrial Relations and Disputes Investigation Act applies to industries within federal jurisdiction including navigation and shipping; interprovincial railways, canals, telegraphs, steamship lines and ferries; aerodromes and air transport; radio broadcasting stations; and works declared to be for the general advantage of Canada.

The legislation provides for the right of free association of employees and employers, for the safeguarding of that right by prohibiting unfair labour practices, for the certification by the Canada Labour Relations Board of a trade union as bargaining agent for a group of employees, and for compulsory collective bargaining.

### ***Labour Organization***

A third of the wage and salary workers in Canada's non-agricultural industries belong to unions. They are distributed across the country in approximately the same proportions as the population generally. The heaviest proportion of the members—63 p.c.—are in Ontario and Quebec and 14 p.c. are in British Columbia.

Most of the unions to which the Canadian workers belong are affiliated to one of the three large central labour congresses—the Trades and Labour Congress of Canada (601,000 members), the Canadian Congress of Labour (361,000 members) and the Canadian and Catholic Confederation of Labour (100,000 members). In the first two, most of the unions are international in their scope, having headquarters in the United States. There is, however, one large group of workers belonging to unaffiliated unions which comprise the International Railway Brotherhoods, numbering approximately 40,000 members. At conventions in 1955 both the Trades and Labour Congress of Canada and the Canadian Congress of Labour approved an agreement for merging their organizations. The new Canadian Labour Congress, with an affiliated membership of one million workers, will hold its first convention at Toronto in April 1956.

Collective bargaining is a basic function of all the unions. More than 6,500 agreements are in effect throughout the country. In total, they affect the working conditions of almost 40 p.c. of the non-agricultural wage and salary workers, although the percentage of the workers covered varies by industrial groups. For example, in transportation and communications 82 p.c. of the workers are covered by agreement and in mining 74 p.c. are covered; other industries have lesser proportions of their working force covered. In manufacturing, 55 p.c. of the workers carry on many of their activities under the terms of a collective agreement, in public utilities 47 p.c., service 13 p.c. and trade 9 p.c.

### ***Unemployment Insurance***

The Unemployment Insurance Act, which came into operation in July 1941, provides for a contributory scheme of unemployment insurance and a nation-wide free employment service. The Act is administered by an

outine clerical work has been revolutionized in the past few years. With the use of modern machines, fewer people are able to handle a larger volume of work faster and more accurately.



Unemployment Insurance Commission, consisting of a Chief Commissioner and two Commissioners—one appointed after consultation with organized labour and one after consultation with employers. Regional and local officers strategically located across the country handle applications for employment and claims for unemployment insurance benefit.

All persons employed under a contract of service are insured unless specifically excepted. Exceptions include such employments as agriculture, fishing, domestic service, school-teaching, and those employed on other than an hourly, daily, piece or milage basis with annual earnings exceeding \$4,800. Persons employed on an hourly, daily, piece or milage basis are insured regardless of earning level. Employers and their insured workers contribute equally, the contributions being based on the wages or salaries earned. The Federal Government adds one-fifth of the total employer-employee contributions and pays administration costs.

### *Rates of Contribution and Benefit under the Unemployment Insurance Act*

(Effective Oct. 2, 1955)

Range of Earnings	Weekly Contributions		Employee's Average Weekly Contribution	Weekly Benefit	
	Em- ployer	Em- ployee		Without Dependant	With Dependant
	cts.	cts.	cts.	\$	\$
While Earning in a Week—					
Less than \$9.00.....	08	08			
\$ 9.00 and under \$15.00..	16	16	Less than 20.....	6.00	8.00
\$15.00 and under \$21.00..	24	24	20 and under 27..	9.00	12.00
\$21.00 and under \$27.00..	30	30	27 and under 33..	11.00	15.00
\$27.00 and under \$33.00..	36	36	33 and under 39..	13.00	18.00
\$33.00 and under \$39.00..	42	42	39 and under 45..	15.00	21.00
\$39.00 and under \$45.00..	48	48	45 and under 50..	17.00	24.00
\$45.00 and under \$51.00..	52	52	50 and under 54..	19.00	26.00
\$51.00 and under \$57.00..	56	56	54 and under 58..	21.00	28.00
\$57.00 and over.....	60	60	58 to 60.....	23.00	30.00



During the calendar year 1955 there were 1,921,644 initial and renewal claims filed, 1,307,270 claimants were considered entitled to benefit on initial and on renewal claims, and benefit payments totalled \$199,660,050. Comparable figures for 1954 were 2,096,930 claims, 1,566,761 entitlements to benefit, and payments of \$227,028,976.

In addition, supplementary benefits are paid during the period Jan. 1 to Apr. 15 each year to certain classes of claimants unable to qualify for the regular benefit. In the 1955 period such benefits amounted to \$29,205,047 paid to an estimated 228,600 persons. This compares with \$14,132,015 paid to 193,000 beneficiaries in the 1954 period.

***Persons Insured under the Unemployment Insurance Act, by Industrial Group, Sex and Province, as at Apr. 1, 1954***

Industrial Group	Males	Females	Province	Males	Females
	No.	No.		No.	No.
Agriculture.....	2,030	630	Newfoundland.....	43,410	6,190
Forestry and logging..	53,760	1,430	P. E. Island.....	7,060	2,530
Fishing, hunting and trapping.....	70	40	Nova Scotia.....	85,300	21,940
Mining, quarrying and oil wells.....	92,230	3,030	New Brunswick.....	77,950	17,900
Manufacturing.....	875,430	268,020	Quebec.....	680,180	242,100
Construction.....	175,400	6,580	Ontario.....	941,020	356,890
Transportation, storage and communication.	276,340	51,970	Manitoba.....	119,160	47,960
Public utility operation	32,060	4,740	Saskatchewan.....	67,650	23,210
Trade.....	321,820	200,450	Alberta.....	141,240	42,020
Finance, insurance and real estate.....	46,270	71,460	British Columbia....	231,260	76,140
Service.....	192,650	152,820			
Unspecified.....	17,330	4,650			
Claimants.....	308,840	71,060			
<b>Totals.....</b>	<b>2,394,230</b>	<b>836,880</b>	<b>Totals.....</b>	<b>2,394,230</b>	<b>836,880</b>

**The National Employment Service.**—The Unemployment Insurance Commission operates the National Employment Service rendering service to all workers and employers in Canada through a national chain of 225 offices. In 1954 a total of 861,588 vacancies were filled by the Service for Canadian employers. Of these, 588,572 were jobs for regular employees and 239,038 were casual placements; the number of persons transferred to jobs in other areas was 33,978.

## ***Vocational Training***

The Vocational Training Co-ordination Act, introduced in 1942, provides, in co-operation with the provincial governments, various types of training considered in the public interest. Projects under the Vocational Training Agreement include training for unemployed persons who require such assistance to fit them for suitable employment, special programs for handicapped persons, training of supervisors and foremen in industry, training for members of the Armed Forces, rehabilitation training for disabled civilians, and short intensive courses for young people in rural communities and for persons engaged in fishing, forestry, mining and other primary industries. The Federal Government pays the full costs for the training of service men and pays half of all other training costs under this agreement.

Under an agreement covering the ten-year period ended Mar. 31, 1955, the Federal Government provided the provinces with approximately \$20,000,000 to assist in the establishment and operation of vocational and technical schools and classes of lower than university grade. Of that amount, each province was entitled to \$10,000 annually and the Northwest Territories to \$1,500 annually as an outright grant. The remainder was apportioned annually on the basis of the 15-19 age group to reimburse the provinces up to 50 p.c. of their expenditures on vocational school projects. An additional \$10,000,000 was also made available to match, to the extent which that amount permitted, capital expenditures by the provinces on the construction, extension and equipping of vocational schools, trade schools and technical institutes. Extension of the agreement to Mar. 31, 1956, made available a further federal assistance of about \$2,000,000 for distribution on the same basis.

The total budget of the Training Branch of the Department of Labour, which is responsible for the administration of the Vocational Training Act, was \$4,496,345 for the year ended Mar. 31, 1956.

### ***Civilian Rehabilitation***

A Civilian Rehabilitation Branch was established within the Department of Labour in February 1951 for the purpose of co-ordinating all activities, both public and private, directed towards the rehabilitation of so-called disabled persons. Working co-operatively with the Department of Labour in this matter are the Departments of National Health and Welfare and of Veterans Affairs. Nine provinces have signed Co-ordination of Rehabilitation Agreements with the Federal Government and have appointed provincial co-ordinators, whose salaries and expenses may be shared equally by the two levels of government. The provincial staffs are working to co-ordinate on a regional and local basis the efforts of all agencies working with the disabled and to stimulate the interest of the medical profession, management, labour, and vocational and placement services in the potential value of such persons. Training of any type required may be obtained for a disabled person through the Vocational Training Co-ordination Act, provided such training would result in his rehabilitation. Health grants have been supplemented to fill gaps in existing services.

### ***The Older Worker***

Canada's steadily aging population, coupled with trends that result in rejection or withdrawal from employment of an important segment of older workers, presents a national problem demanding close scrutiny. In 1881, the number of Canadians over 40 years of age constituted 20 p.c. of the population; by 1951 this had increased to approximately 32 p.c. This trend should be considered in relation to the fact that one of the chief difficulties facing the National Employment Service in matching unplaced applicants with unfilled jobs is a tendency on the part of employers to reject applicants over 40 (over 35 for women). An Interdepartmental Committee, set up as a sub-committee of the National Advisory Council on Manpower, is engaged in a broad program of education and is conducting surveys to fill gaps in Canadian knowledge of many aspects of the full utilization of the abilities and experience of the older worker.



*An informal art exhibit held in a pasture not far from Ottawa reflects the enthusiasm of teacher and students. Original paintings to the value of over \$10,000,000 are sold in Canada each year and the greatest stimulus to this interest is the amateur painter movement, now with tens of thousands of adherents from every walk of life.*



## Cultural Relationships

SINCE the end of World War II there has been a noticeable upsurge of public interest in all forms of cultural activity in Canada; an interest which is widely diversified as far as the individual arts are concerned and one which tends to break down regional cultural isolation. Until recently, the arts were regarded mainly as frills and unessentials by Canadians; but the attitude has changed notably since 1945 and there is now an inclination to consider cultural development as a natural parallel to the nation's impressive economic and political growth.

This tendency received important impetus between 1949 and 1951 when a Royal Commission appointed by the Federal Government made a notable investigation into the condition of the arts, letters and sciences throughout Canada and reported to Parliament and to the people in the remarkable "Massey Report". Many of the recommendations contained in that report have been implemented, either wholly or in part, but one important proposal—the setting up of a "Canada Council" to promote the Federal Government's interest in cultural and intellectual matters—still awaits official action.

During 1955 all the arts thrived in Canada and in many ways an increasing cultural maturity and sophistication was observed. The exchange of persons and artistic exhibitions between Canada and other countries reached a new high point, and throughout the country there were many evidences that this development of two-way traffic in the arts received both popular and official approval. Canadian musicians, painters, sculptors, actors and writers ventured into many foreign fields and, in a number of instances, received favourable notices from experienced writers and critics.

A recently expressed interest in the arts by the Canadian business and industrial community continued through 1955, and there now appears to be no doubt that many forms of cultural activity have achieved permanent places in public relations programs. The commissioning of paintings, musical compositions and decorative sculpture, the subsidizing of art exhibitions and ballet performances, the financing of awards and scholarships, and other similar activities, are now placing Canadian business enterprises forcefully behind the development of the arts.

The provincial governments have continued their support of the arts and are now important factors in the cultural picture. The Province of Quebec has provided generous and direct encouragement for many years to painters, writers and musicians resident in the Province, and its scholarship scheme is extensive. In Saskatchewan an Arts Board, and in Alberta a Cultural Development Board have been growing in importance and during 1955 took a leading part in the Golden Jubilee celebrations of the two provinces. Many imaginative and successful cultural development activities are initiated and supported by the Community Planning Division of Ontario and the Adult Education Branch of Nova Scotia.



Music was an added attraction at the 1955 Stratford Shakespearean Festival. The appearances of Elizabeth Schwarzkopf, famed German soprano, and Marcel Marceau's mime were perhaps the most successful performances. Under the auspices of the Royal Conservatory of Music, Mme. Schwarzkopf conducted master classes in voice.

## Music

Music has always been an important part of the Canadian way of life—in education, social life, religion and entertainment—and 1955 saw a continuation and enlargement of many of the forms of musical activity. Of notable importance was the international Congress of Musical Youth (Jeunesse Musicales) held in Montreal from Aug. 7 to 13, attended by delegates from 18 nations. At Stratford, Ont., a successful musical festival was held in conjunction with the Shakespearean Festival and in several cities the growing Canadian League of Composers sponsored successful concerts featuring the works of music writers living in Canada. Two notable musical books published in Canada in 1955 were *Music in Canada*, written by an



impressive group of experts and edited by Sir Ernest MacMillan, and *Folk Songs of Canada*, by Edith Fowke and Richard Johnston. The Ottawa Philharmonic Orchestra gained notice early in 1955 with its national competition for a small symphonic work written by a Canadian. The winning work was written by Neil McKay of London, Ont. Symphonic orchestras throughout Canada continued to gain public support and appreciation, with special approval being directed toward the groups in Toronto, Winnipeg and Vancouver.

The greatest single factor in the encouragement of serious music in Canada is the public-owned Canadian Broadcasting Corporation. The music festival movement, which extends across Canada and involves full-fledged festivals in about 25 cities, enjoyed another extremely successful year in 1955. The Provinces of Alberta and Saskatchewan both offered "jubilee awards" for musical composition and performance, as features of their 50th birthday celebrations. In the spring of 1955 considerable interest developed in connection with the future plans of the McGill University Faculty of Music and its Conservatorium. The Principal of the University, Dr. F. Cyril James, predicted important development of the faculty and enlargement of its usefulness to the university and the Montreal community; it is probable that the new plans will include an opera school, expanded summer study facilities and a radio-television school for musicians.

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*The Toronto Symphony Orchestra in rehearsal before the opening of the 1955-56 season. Sir Ernest MacMillan is directing his twenty-fifth and final season as permanent conductor of the orchestra. Symphonic orchestras in Montreal, Winnipeg and Vancouver are also staffed with full-time professional musicians.*







Robert Christie as  
Julius Caesar  
making his entrance  
onto Stratford  
famous stage and  
launching the third  
annual Shakespearean  
Festival during which  
the Merchant of  
Venice and Sophocles'  
Oedipus Rex were also  
performed.

## Theatre

The theatre has always been one of Canada's most widespread and most successful cultural activities, and 1955 was no exception. Notable was the third annual Shakespearean Festival at Stratford, Ont., which attracted 126,500 box office customers and grossed an income of \$421,000 for its nine-week program in July and August. *Julius Caesar*, *The Merchant of Venice* and *Oedipus Rex*, directed by Tyrone Guthrie and Michael Langham, and employing a large cast of Canadian players, received favourable notices from foreign and Canadian drama critics and served to increase the already considerable prestige of the Stratford Festival. The Dominion Drama Festival, the culmination of Canada's annual country-wide competition among amateur theatre groups, was held at Regina, Sask., from May 9 to 14. The University of British Columbia Players' Club Alumni, presenting Arthur Miller's *The Crucible*, were named top winners for 1955. The adjudicator was Gerda Wrede, noted Finnish actress, drama teacher and theatre manager, and the Festival's first woman adjudicator in twenty-three years. Of particular interest was the invitation extended to Montreal's *Théâtre du Nouveau Monde* to present three *Molière* one-act plays at the Paris Drama Festival. It was the first time a Canadian group had been invited to take part in such a distinguished European drama event. Repertory theatre was available to Canadians in Montreal, Toronto and Ottawa in 1955 and summer stock companies were more numerous than ever before. A new venture which attracted considerable attention was the theatre portion of the new Festival of the Arts at Kingsmere, Que. The seventh annual Shakespearean Festival of the Earle Grey Players, performed outdoors in the quadrangle of Trinity College, Toronto, was a notable success. In the autumn of 1955 a visit to Montreal, Ottawa, Toronto and Quebec by the famous *Comédie Française* troupe of players from Paris was a memorable highlight of the year for theatre-goers in Eastern Canada. The well-established Little Theatre movement and many drama groups in Canadian universities kept Canada's bilingual

amateur theatre activities moving at a satisfactory pace, and children's theatres operated successfully in Ottawa, London, Winnipeg, Regina, Edmonton, Vancouver and other centres. The Halifax Theatre Arts Guild celebrated its 25th anniversary in 1955 and at Tatamagouche, N.S., the School of Community Arts introduced highly successful courses in elementary and advanced theatre techniques. The Newfoundland Drama Festival Society held an important conference to make a study of problems peculiar to the new Atlantic Province. In Montreal the well-known Montreal Repertory Theatre announced important plans for expansion, including a new building and a professional wing project.

## Literature

Considerable interest and some controversy was aroused in April 1955 when it was announced that the Governor General's award for fiction for the year went to Igor Gouzenko, former cipher clerk in the Russian Embassy at Ottawa, for his novel *The Fall of a Titan*. Other winners of the top-flight awards were: creative non-fiction, Hugh MacLennan's *Thirty and Three*; academic non-fiction, Arthur M. Lower's *This Most Famous Stream*; poetry, Patricia K. Page's *The Metal and the Flower*; juvenile, Marjorie Wilkins Campbell's *The Nor'westers*. Robertson Davies, newspaper editor in Peterborough, Ont., won the Leacock Medal for Humorous Writing with his novel *Leaven of Malice*. In Canada, book writing and book publishing have prospered in recent years, despite the new forms of competition from television and

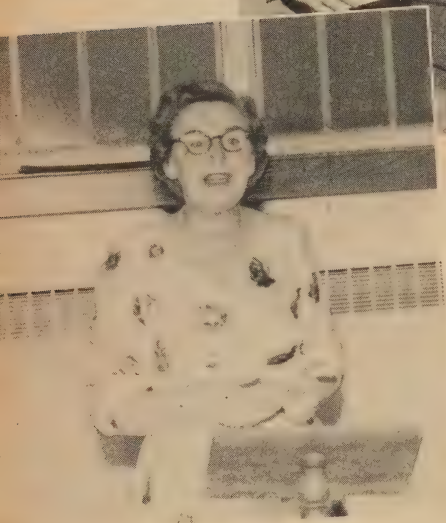
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Performance of "The Crucible", play by Arthur Miller, won for the University of British Columbia Players' Club Alumni the top award of the 1955 Dominion Drama Festival.





The new Canadian books displayed at the 1955 Convention of the Canadian Authors Association were a great source of interest to its members.



Mrs. Marjorie Wilkins Campbell accepting the Governor General's award for her book "The Nor'westers", winner in the 1955 juvenile category.

magazines, and the whole literary scene has been marked with eagerness and vitality and a form of sophistication which were largely lacking in the country's earlier years. Playwriting has recently become a satisfying and even financially profitable outlet for creative writers in Canada, with particular encouragement being offered by the many opportunities to write for Canadian radio and television broadcasting programs. The Ottawa Little Theatre Workshop's 16th annual playwriting competition brought sixty-eight entries from many parts of Canada. Norman Williams of Toronto won first award, and later in the year published a volume of one-act plays.

## Ballet

While ballet in general continued to thrive throughout Canada in 1955, the exploits of the country's two major companies gained widespread attention, the Royal Winnipeg Ballet Company for its phoenix performance and the National Ballet Company for its Swan Lake in four acts. The entire assets



of the Winnipeg company were completely destroyed by fire in June 1954 and, as a consequence, its corps of dancers had to find employment elsewhere. Eighteen months later the company, with the devoted backing of the people of Winnipeg, had raised \$50,000 and was able to renew its professional career with an opening performance to packed houses. The company intends to go on tour in 1956. Meanwhile, the noted Toronto-based company gained in stature and prestige as it presented a varied and difficult repertoire (including a four-act *Swan Lake*) to critical audiences in Canada and the United States. The company's work in New York and Washington stood up well in the opinions of the time-hardened critics of the large metropolitan papers and some of the world's most noted dance experts. The company received invitations to return to the American cities and offers came from impresarios in England, South Africa and Australia for tours in 1956 and 1957. The development of young Canadians into leading dancers for Canadian companies is a matter of considerable satisfaction, although the importance of the contribution of experienced European dancers who have come to make their homes in Canada is not under-estimated. There seems little doubt that ballet has an opportunity for notable development and financial success in Canada.

## Visual Arts

All forms of the visual arts showed vitality and growth in 1955, perhaps the most interesting event being the appointment of a new Director of the National Gallery of Canada. The new top man in Canada's art world is Alan Jarvis, an able sculptor and an administrative officer trained in British and European art galleries following schooling and basic art education in Canada. He succeeded Dr. H. O. McCurry, who retired after 36 years of devoted and successful service to Canada's national centre of art.

Early in 1955 it was announced that Miss Frances Loring of Toronto had won the national competition for a sculptured work to serve as a memorial to

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*Scene from the full-length ballet "Swan Lake", performed by the National Ballet Company before Canadian and United States audiences during the Company's 1955 and 1956 tours.*



the former Canadian Prime Minister, Sir Robert Borden. Notable interest in the world of sculpture was created by several exhibitions of carvings by Canadian Eskimos, and the strength and simplicity and skill of the native work won high praise. Purchases by galleries and individuals were brisk. Public interest in painting was considerable in 1955, with healthy controversy developing over the merits of "modern" painting by Canadian artists. In Winnipeg, a heated outburst followed an exhibition by the Manitoba Art Association and in Montreal attention centred for a while on a noted philanthropist-painter's offer of scholarship assistance to young painters who indicated proper appreciation of the virtues of conservative, representational art. Exhibitions by the several senior art bodies in Canada were well patronized and one-man shows by young artists were more numerous than ever before. Dealers reported that the sales of paintings by Canadians were good, and the utilization of high-class work by Canadians in the field of graphic arts reached an all-time high. The number of successful exhibitions abroad by Canadian painters was a source of gratification, while an offsetting increase in the exhibitions in Canada of the works of foreign artists indicated a sound two-way interest. Of special interest was the honouring, in May 1955, of Emily Carr, one of Canada's most noted artists, by the unveiling of a stone and bronze memorial in Victoria, B.C. Formal art schools and informal art classes continued to enjoy unprecedented popularity during the year, and a growing interest in art and esthetics at the academic level was noted in several of the larger Canadian universities. Coverage of art news in the daily and periodical press of Canada showed a significant increase in 1955—a reflection of the rapidly growing general public concern with the arts.

### *Handicrafts*

The promotion and encouragement of handicrafts is highly developed throughout Canada, and organization is in the form of voluntary societies and government-sponsored groups at the national, provincial and local levels.



*Works of the Masters are a never-ending source of inspiration and education to students.*

## CANADIAN PAINTINGS

NATIONAL GALLERY OF CANADA



A View of Chateau Richer Church  
Near Quebec, taken in 1788

Thomas Davies  
(circa) 1737-1812

• •

*This early Canadian water colour is one of a group of twenty recently discovered in the library of the Earl of Derby and now in the collection of the National Gallery of Canada. Thomas Davies of the Royal Regiment of Artillery arrived in Halifax around the year 1757 and during the course of his service in North America painted this series of water colours which are remarkable not only as geographical records—for the making of topographical drawings was part of the general training of British officers of that period—but for the unusual freshness of vision and richness of colour with which he portrayed these scenes of eighteenth-century Canada.*



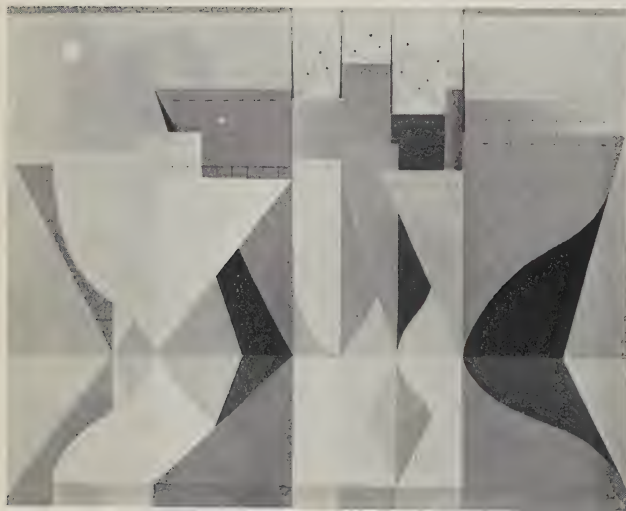


Le Repas du Colon

Ozias Leduc  
1864-1955

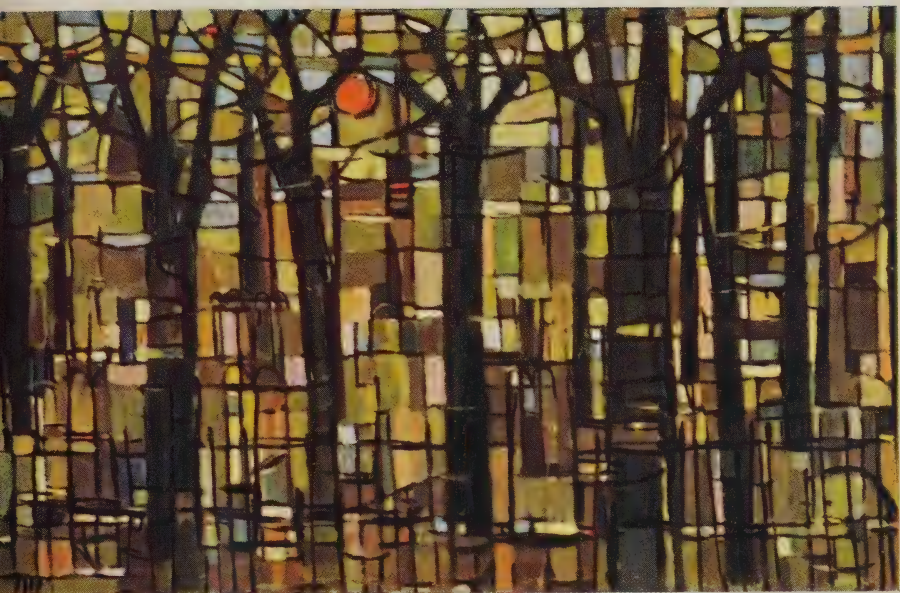
Landscape

Stanley M. Cosgrove  
1911—



Ships in Classical Calm

B. C. Binning  
1909—



Pruned Trees

Gordon Applebe Smith  
1919—

The Car Ferry at Sidney, B.C.

Edward John Hughes  
1913—







Barnston Pinnacle

John Lyman  
1886—



Girl Seated

Jacques de Tonnancour  
1917—



part of a mural painted by George Pepper, R.C.A., O.S.A., symbolizing the treatment services provided for Canada's war veterans; it is one of three painted by prominent Canadian artists for the new Veterans Affairs building in Ottawa.



Many skills and crafts have been practised in Canada since the earliest times when the actual needs of pioneer life demanded home manufacture of furniture, rugs, cloth, dishes, utensils, clothing and ornaments. To this knowledge and skill of indigenous crafting has been added the handicraft talent of immigrant peoples from every country in Europe, with a resultant variety probably not equalled elsewhere.

Provincial governments and the extension departments of universities maintain staffs of highly trained and skilled handicraft workers who organize groups, train leaders and sponsor exhibitions. Many civic governments employ skilled handicraftsmen to teach and organize at community centres, and civic exhibitions of crafts are frequent. In most cities, handicrafts are taught in the local schools. The Federal Government promotes handicraft activities among its wards—the Indian and Eskimo peoples.

The Canadian Handicraft Guild, with a number of provincial subsidiary branches, is a strong and vigorous citizens' organization devoted to the promotion of all forms of handicraft. A number of individual crafts are organized within the general handicraft network and promote the welfare of their particular groups. The Canadian Guild of Potters and the Canadian Leathercraft Guild, representing a fine arts aspect of their crafts, are members of the Canadian Arts Council.

## Cultural Organizations

Cultural organizations, serving as focal centres for Canadian painters, musicians, writers, dancers, dramatists and others concerned with the arts, have grown in number and importance in recent years and for many of them 1955 was a banner year of activity. Most societies serve very effectively on a local basis but a number of them have national ramifications and exercise



*Restored Indian village at Midland, Ont., is a scene familiar to explorers and fur traders three hundred years ago. Reconstruction was based on information unearthed in many excavations of Huron Indian villages in this district and on the written records of the first white men who visited them.*

considerable influence in the moulding of public opinion. The Canadian Arts Council, now in its twelfth year of existence, is a federation of national organizations which dominate much of the professional cultural life of Canada, including: the Royal Architectural Institute of Canada, the Canadian Authors Association, La Société des Écrivains Canadiens, the Federation of Canadian Artists, the Canadian Music Council, the Canadian Handicraft Guild, Canadian Guild of Potters, Canadian Group of Painters, Canadian Society of Painter-Etchers and Engravers, Sculptors Society of Canada, Canadian Society of Graphic Arts, Canadian Society of Landscape Architects and Townplanners, the Arts and Letters Club, the Canadian Ballet Association and the Canadian Society of Creative Leathercraft. The Royal Canadian Academy of Arts is the officially sponsored prestige body in the field of fine art, although most of the newer and more specialized art groups are vigorous and influential.

Summer schools of the arts in many parts of Canada were well patronized in the 1955 season. Some of the more noted are: the Banff School of Fine Arts at Banff, Alta.; the Doon School near Galt, Ont.; Maritime Summer School of Mount Allison University, Sackville, N.B.; Queen's University, Kingston, Ont.; L'École des Beaux-Arts, Quebec, Que.; and the Regina College Summer School at Emma Lake, Sask.

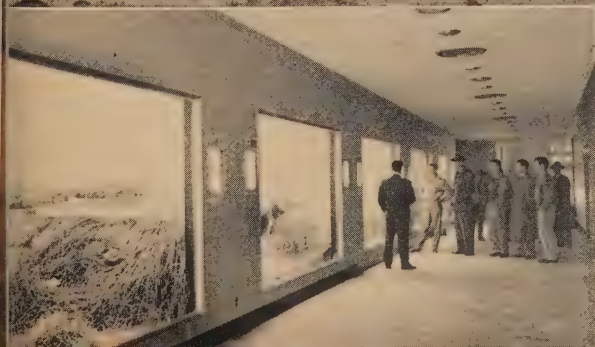
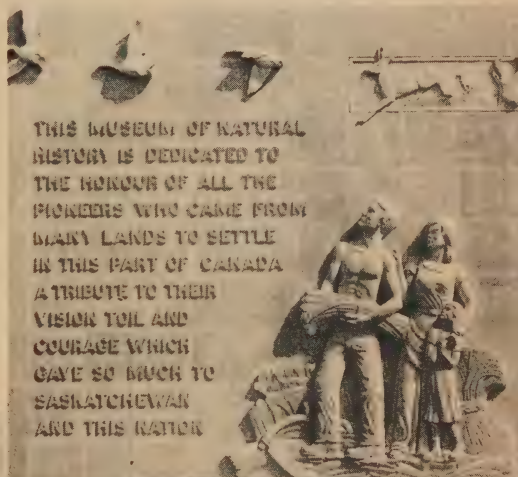
### ***Museums and Art Galleries***

Among the chief functions of museums and art galleries are the preservation of concrete records of the past and the presentation of these records in



permanent or special exhibit groupings according to subject themes for the interest and enlightenment of the general public. Although there are in Canada no museums and art galleries comparable with the wealthy and long-established institutions to be found in other leading nations, those in the national capital and in the larger cities offer encouragement to the smaller provincial and local ones through generous programs of travelling exhibitions,

*The Saskatchewan Museum of Natural History, opened at Regina in May 1955, is a monument to the pioneers of the Province. It is a long, low, strikingly designed building, around the top of which is a sculptured frieze containing more than 300 animals, birds and fish, most of them indigenous to the Province. Through its zoological, geological and archaeological exhibits and its extension program, the Museum is striving to create a deeper appreciation of the aesthetic and practical value of wildlife resources and thereby to foster individual responsibility toward their conservation.*



*Animals and birds are realistically displayed in their natural environments.*



lecture tours and reproductions, and in recent years a newly awakened consciousness of the significance of such institutions to the cultural life of the people has become evident at the federal, provincial and municipal levels.

The National Museum at Ottawa, although essentially a museum of natural history carrying on scientific research in zoology, botany and anthropology, has collected an extensive exhibit of Indian and Eskimo lore and many phonographic recordings of French-Canadian, English-Canadian and Indian songs. Other federally operated museums include the Canadian War Museum, the nucleus of a historical museum housed in the Public Archives, a collection of aviation exhibits in the National Research Council, a farm implement exhibit at the Experimental Farm at Ottawa, and several historical museums situated in National Parks. All are modest in scope.

The Royal Ontario Museum at Toronto is the largest and best-known of the provincial museums. It specializes in the field of archaeology and carries on extensive work in research and publication. The New Brunswick Museum, though smaller, is noted for its exhibits designed for school use. Laval University, McGill University, the University of Western Ontario and the University of British Columbia all have sizable collections, and certain private exhibits, such as that of the Hudson's Bay Company at Winnipeg and that of the Bell Telephone Company at Montreal, attract many visitors.

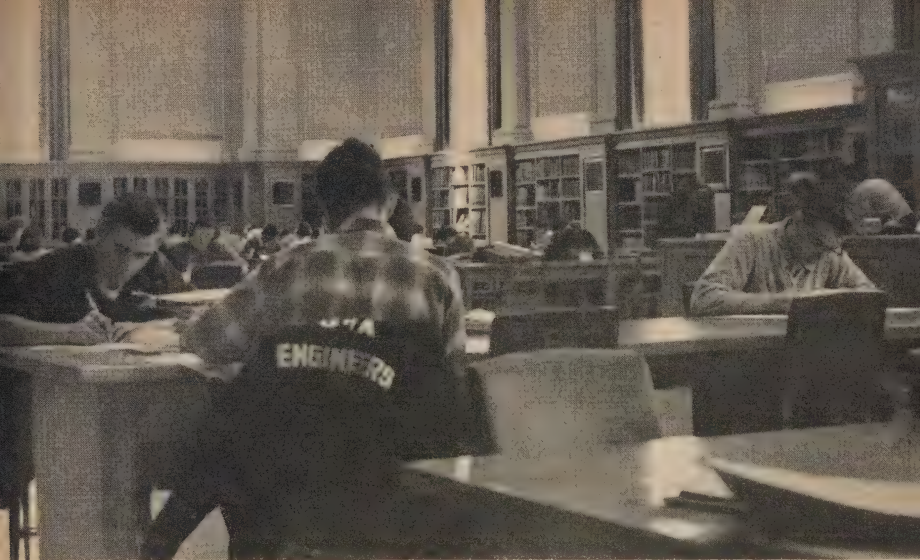
The National Gallery at Ottawa has assembled a permanent collection of paintings and sculpture, prints and drawings representative of past and present styles from various countries. The Canadian section is most inclusive and is made known to the whole country through catalogues, photographs, colour reproductions, films, radio broadcasts and, to a limited extent, by loans. The extension work of the Gallery includes organization of exhibitions from collections abroad and the fostering of Canadian industrial art. There are also important collections in most of the larger cities such as Toronto, Montreal and Vancouver.

The Public Archives of Canada at Ottawa has accumulated valuable collections of public and private papers, newspapers, manuscripts, maps and pictures concerned with Canadian history. Several provincial governments also support archival collections, some in collaboration with provincial universities located at such cities, as at Halifax, Toronto and Saskatoon.

## ***Libraries***

Public library service in Canada is conducted through large urban libraries and their branches in metropolitan areas, sometimes augmented by book-mobile service to outlying districts; by smaller libraries in villages and hamlets; by regional service established on a county or wider basis; and by mail service to remote areas.

The 765 public libraries covered by the 1953 DBS library survey reported 8,405,375 volumes, a circulation of 30,946,730 books among 1,671,942 borrowers, and expenditures amounting to \$7,811,465. In relation to the total population of the ten provinces, these libraries, exclusive of travelling and open-shelf services, had 0.6 volumes per capita, circulated 2.1 volumes per capita and spent 53 cents per capita. Altogether, 11 p.c. of the population were registered public library borrowers.



*The new Rutherford Library of the University of Alberta. Library facilities of universities all across the country have been greatly increased in the past few years—new libraries have been built and existing collections re-organized and extended.*

The following table gives the latest available information on the book stocks and staffs of the various types of library in Canada.

### *Summary Statistics of Libraries, by Type and Province, 1953-54<sup>1</sup>*

Type and Province	Libraries <sup>2</sup>	Volumes <sup>3</sup>	Full-time Staff	Part-time Staff	Trained Staff <sup>4</sup>
	No.	No.	No.	No.	No.
Public.....	765	8,405,375	1,595	1,403	620
University and college.....	268	7,630,261	545	615	290
Federal government.....	102	2,067,430	345	34	107
Provincial government.....	99	1,389,516	162	59	53
Business, professional and technical society.....	131	774,629	253	74	61
Travelling and open-shelf.....	9	411,200 <sup>5</sup>	62 <sup>5</sup>	8	21 <sup>5</sup>
<b>Totals (less duplication).</b>	<b>1,374</b>	<b>20,651,411</b>	<b>2,958</b>	<b>2,193</b>	<b>1,151</b>
Newfoundland.....	10	225,264	28	7	7
Prince Edward Island.....	6	115,522	13	30	6
Nova Scotia.....	49	819,813	91	95	52
New Brunswick.....	30	476,449	46	29	16
Quebec.....	244	5,326,246	495	393	262
Ontario.....	703	9,678,850	1,507	1,036	550
Manitoba.....	31	740,912	124	87	31
Saskatchewan.....	93	847,406	113	122	46
Alberta.....	123	837,329	158	204	42
British Columbia.....	85	1,583,620	383	190	139

<sup>1</sup> Figures for federal and provincial government libraries are for the year ended Mar. 31, 1954; others are for the calendar year 1953.

<sup>2</sup> Main libraries only.

<sup>3</sup> In main

and branch libraries.

<sup>4</sup> Degree status training in library science.

<sup>5</sup> Includes some

duplication in Newfoundland figures.

Services other than book lending are also provided by public libraries. Many of them have stocks of films and records which may be borrowed by individuals or used for the instruction and entertainment of local audiences.

Story hours and puppet shows for children are often conducted and art exhibitions arranged. Young Canada Book Week is sponsored each year by the libraries in co-operation with the Canadian Library Association to promote interest in reading among Canadian children and to acquaint them with the services provided by libraries.

*The National Library.*—A National Library was formally established on Jan. 1, 1953, by the National Library Act. Plans for the building have been completed, but construction has not yet begun and the acquisition of bookstock is still on a limited scale. In the meantime, work has continued on three major projects: the completion of a National Union Catalogue of the holdings of major Canadian libraries; the preparation of various catalogues, bibliographies and check lists relating to Canadian publications; and the microfilming of rare books and periodicals of Canadian interest. The National Library requires, by law, the deposition of the following types of new books published in, or imported into, Canada for public distribution or sale: those manufactured in Canada; those written or illustrated by Canadians; and those about or relating in a significant way to Canada.

By the end of 1954, the National Union Catalogue contained information on the bookstock of 91 libraries holding 5,962,733 volumes.

## *Media of Mass Communication*

**The Press.**—About 97 daily newspapers, counting morning and evening editions separately, are published in Canada, with an aggregate reported circulation of more than 3,770,000—about 83 p.c. in English and the remainder in French, except for a few in Yiddish or Chinese. Ten of the papers enjoying circulations in excess of 100,000 account for more than half of the circulation. Well over 90 p.c. of all newspaper circulation is in urban centres.

Weekly or monthly publications include a considerable variety of foreign-language publications including Ukrainian, German, Yiddish, Polish, etc. Weekly newspapers serve more people in rural communities than do the dailies.

The Canadian Press, a co-operative organization owned and operated by Canada's daily newspapers, provides its 95 members with world and Canadian news and news photographs mostly by means of teletype and wirephoto transmission. It also serves weekly newspapers and radio and television stations. It is, in effect, a partnership through which each member newspaper provides to its fellow-members the news of its particular area and through which the general news of the world is brought to Canada. Cost of editing and transmission is divided among members according to the populations of the cities in which they publish. CP gets world news from Reuters, the British agency, and from the Associated Press, the United States co-operative, and these agencies have reciprocal arrangements with CP for their coverage of Canada.

The British United Press, privately owned and affiliated with the United Press, with 12 bureaux, also provides a service of Canadian and world news, news photographs and related features for Canadian newspapers, radio and television stations. There are as well special news services operated by affiliated newspapers and individual newspapers. Several foreign news agencies have representatives in Canada to supply and interpret news of Canadian origin, as have also several of the leading United Kingdom and United States newspapers. Most of the latter are located at Ottawa.



*Press Statistics.*—Daily newspapers alone contribute 60 p.c. of the value of periodical publications, totalling \$247,000,000, produced in Canada each year, of which amount 73 p.c. is realized from advertising and 27 p.c. from sales. Printed and bound books are produced to the value of \$32,000,000, with fiction, non-fiction, scientific and text books making up somewhat less than half that amount. Recorded imports of books and other printed matter greatly exceed recorded exports, the former amounting to over \$68,000,000 and the latter to about \$3,200,000 in 1953. Hence, it appears that the per capita expenditure of Canadians on books, pamphlets and periodicals is in the neighbourhood of \$21 a year.

News-stand in the Toronto subway terminal Union Station.



The combined circulation of Canadian magazines is over 11,300,000. In order of popularity, magazines classified as home, social and welfare come first, agriculture second, trade and industry third, religion fourth and education fifth.

Purchases of books and other printed matter from the United States are significant, recorded imports having increased from \$28,585,000 in 1948 to \$61,832,000 in 1954. Imports from the United Kingdom have shown a small annual increase in post-war years to about \$3,016,000 in 1954. In the same year, imports from France were valued at \$2,069,000.

**Radio and Television.**—Radio broadcasting and television in Canada are dealt with at pp. 284-288. The number of radio receiving sets made available in Canada through domestic production and imports has averaged about 650,000 a year since the end of World War II. From a high of 836,419 in 1947, Canadian domestic sales by distributors declined to 620,860 in 1953 and further declined to 487,200 in 1954.



*Most of the films and film strips produced in Canada—about 600 a year—may be classed “educational” and nearly all of them are sponsored by industry, business or government. In this field Canada is second to none as far as quality is concerned.*

The establishment of television service by the Canadian Broadcasting Corporation in 1952 precipitated a tremendous increase in the demand for television receiving sets. Domestic sales mounted from 29,623 sets in 1950, to 39,185 in 1951, 137,236 in 1952, 366,498 in 1953 and 623,856 in 1954.

**Motion Pictures.**—In 1954 there were 1,938 motion-picture theatres in Canada with a seating capacity of 984,907, 230 drive-in theatres, 645 community halls offering screenings, and 658 halls serviced by itinerant operators. On the average, each Canadian attended 16 motion-picture programs and paid \$7.80 in admissions. Most of the films shown were produced in the United States although a small but increasing number of films came from the United Kingdom and a few from France and other European countries. In 1954 Canadian motion-picture studios made over \$3,500,000 worth of film for industry and government and proved themselves capable of producing the highest quality of documentary and educational films. Canadian film production in 1954 was divided between private industry (45 firms) and seven federal and provincial government agencies.

The National Film Board plays a significant role in non-theatrical film distribution through the co-operation of provincial and municipal agencies. During the year ended Mar. 31, 1955, the Board reached a Canadian non-theatrical audience of 14,143,768 at 200,829 showings. Distribution was facilitated through 420 libraries and depots, aided by 462 film councils representing 11,227 film-using groups and by 534 film circuits embracing 6,868 showing points. Through the co-operation of provincial departments of education and the universities, NFB films and filmstrips are distributed extensively to rural and urban schools. During the year, a total audience of 6,550,923 viewed 86,077 school showings.

MEDIUMS AND  
MOODS

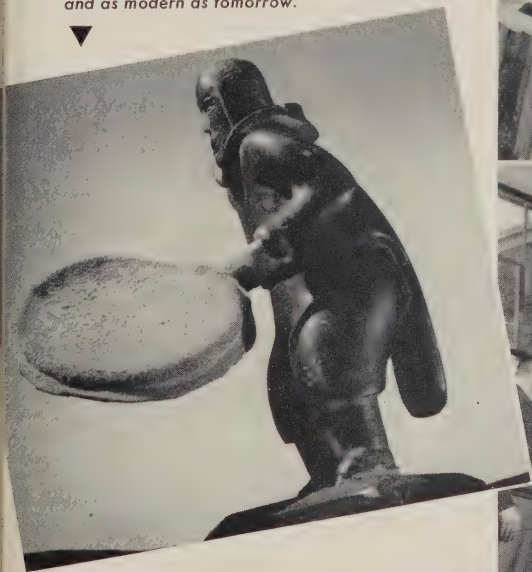
*Classical design in clay.*



*A pine block comes to life under the chisel of a Quebec artist. The forest, basic to the life of the pioneer habitant, provides the perfect medium for the portrayal of his rugged individualism.*



*An Eskimo carving—grace and vitality in native stone—as primitive as his remote ancestors and as modern as tomorrow.*



*Simplicity, flow and clarity in stone follow the trend of architectural design.*







Photographic Survey Corporation

*Sawmill at Chemainus, half-way between Victoria and Nanaimo,  
Vancouver Island, B.C.*



# RESOURCE and INDUSTRIAL DEVELOPMENT

*Forestry*

*Agriculture*

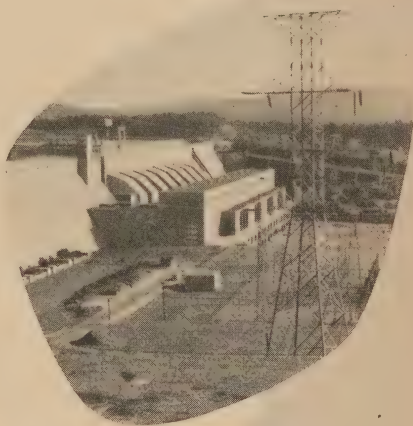
*Water Power*

*Minerals*

*Fisheries*

*Manufactures*

*Capital Expenditures*





# Forestry

THE "bush", as the Canadian forest is familiarly called, has been intimately woven into the social and economic pattern of the country's development since the earliest times. The voyageurs of French Canada sought the prizes of furs which the forest concealed in its illimitable vastness, and hard on their adventurous forays the settler strove to clear the bush and till the land. The immense stands of maple, oak, spruce and pine furnished fuel for the pioneer settler and his family, the logs to build his cabins and, in time, the lumber to build the frame dwellings of his towns and cities; the surplus wood even yielded precious potash for soap; and the navies of France and England carried Canadian spars, masts and timbers in their warrings on the oceans of the world.

At the time logging on the upper reaches of the Ottawa, the Gatineau, and Saguenay Rivers and their many tributaries were yielding the squared white and red pine timbers of the trans-Atlantic timber trade, the forest was thought to be unlimited: but towards the end of the nineteenth century the famed white pine, whose stem had tapered above the gunports of many a British man-o'-war in the age of sail, was all but vanished from the land.

The industry turned from the production of squared timber to the sawing of lumber, and spruce supplanted pine as the chief species for manufacture. Lumbermen thrust further and further into the interior in the search for more timber and finally reached the great Douglas fir forests of the West Coast. It was then realized that the supplies of wood were neither unlimited nor inexhaustible.

In the first decades of the twentieth century came a growing awareness of the need for better forest management and better utilization of the products of the forest. Slowly but steadily the "mining" of the forest has been disappearing and its management as a renewable crop has been gaining ground. The trend towards better conservation and utilization was given tremendous backing by the demands of the pulp and paper industry, which in the past fifty years has risen to premier place among all Canadian manufacturing industries.

Sawmilling has been a relatively mobile industry. As the merchantable treeline receded through cutting, the sawmill owners followed with their equipment. But the heavy fixed establishments of the pulp and paper industry, representing heavy capital investment, presented the forest industries with inescapable economic fact: to make a profit, production had to be on a large scale, hence large mills were needed, and to feed the insatiable grinders and digesters that made the pulp from which a profusion of products flowed, a large hinterland of softwood forest was essential. The concept of the forest as a perpetually renewable resource became a practical matter of meeting the demand with production from a given area—the company's limits—and hence the management of the forest for sustained yield. Nearly all established forest industry now accepts the goal of sustained-yield forestry, and continuous research is carried on in the forest itself and in the laboratory to study the growth, yield, and utilization of wood.

**The Importance of the Forests.**—Canada's forests and the industries that spring from them have tremendous importance for every man, woman and child in the country—in fact, it would be hard to over-estimate their importance.





*The Agawa River in northern Ontario flows through miles of forest on the border between the Boreal Forest Region, the source of much of Canada's timber and pulpwood wealth, and the Great Lakes-St. Lawrence Region where hardwoods are more prevalent.*

All the wood, wood products and paper industries together, not including printing and publishing, accounted for over 14 p.c. of the value of factory shipments of all manufacturing industries in Canada in 1953. When the 1954 export values of the wood, wood products and paper group are taken together they form a favourable balance of \$1,213,000,000 to apply against a net imbalance of \$1,359,000,000 for all other groups of commodities, thus helping to reduce Canada's export deficit to \$146,000,000 (without taking into consideration exports of non-monetary gold).

The forest industries and the industries dependent on the forest for their raw materials give employment to tens of thousands of Canadians—in fact, it has been estimated that one out of every eleven Canadians is directly or indirectly dependent on the woods for a livelihood—and the multifarious uses of wood and its products enter into daily living today more widely than ever before in history.

The forests of Canada lie across the land in broad bands and tongues from Atlantic to Pacific. Eight Regions—the Boreal, the Subalpine, the Montane, the Coast, the Columbia, the Deciduous, the Great Lakes-St. Lawrence, and Acadia—are identified. Of these, by far the largest Region is the Boreal, which forms a continuous belt from the Atlantic Ocean westward to the Rocky Mountains and northwestward to Alaska, and covers 82 p.c. of the forested area of Canada. In this Region the conifers, Canada's most valuable pulpwoods, are predominant and among the conifers, spruce is king. Other prominent conifers of the Region are tamarack, balsam fir and jackpine, alpine fir and lodgepole pine—although the deciduous white birches and poplars are also found in quantity.

Altogether there are more than 150 tree species in Canada, of which 31 are conifers, commonly called softwoods. Only about twenty of these, and about a dozen of the hardwood species are commercially important.

Canada's forested area is estimated at 1,568,000 sq. miles or 44 p.c. of the total land area. Almost 740,000 sq. miles are classified as non-productive, leaving the total estimated productive forest area at 828,000 sq. miles. But though a forest may be classed as productive and hold much fine timber it may not be at present accessible to any recognized form of forest transport or it may be geographically too remote from present-day markets for economical development though it is possible to enter and log it. Therefore, of the total productive forest, only about 582,000 sq. miles is considered accessible. Canada's forest wealth is produced of course from this accessible forest area, the occupied portion of which at present is in the neighbourhood of 380,000 sq. miles. It must also be recognized that much of the occupied forest stands are young growth which must be retained to provide the sinews of the forest of the future.

**Forest Tenure and Administration.**—The vast bulk of Canada's forests—93 p.c.—is owned by the people of Canada in right of the Crown. Only 7 p.c. is privately owned by individuals or corporations. Rights to cut Crown timber under lease or licence are now granted on 15 p.c. of the total forest land. All Crown lands in the provinces are administered by the provincial governments, with the exception of certain forest reserves, National Parks and forest experiment stations, which come under the jurisdiction of the Federal Government. The latter also administers the forest in the nearly 1,500,000 sq. miles of land area in the Yukon and Northwest Territories.

In order to perpetuate Canada's forest resources, most of the provinces now require timber operators on Crown lands to prepare forest inventories of their cutting area and to submit management plans for a stated period of time.

The Canada Forestry Act made provision for assistance to the provinces embracing virtually every field of forestry activity. It states: "The Minister may, with the consent of the Governor in Council, enter into agreements with any Province for the protection, development or utilization of forest resources, including protection from fire, insects and disease, forest inventories, silvicultural research, watershed protection, reforestation, forestry publicity and education, construction of roads and improvement of streams in forest areas, improvement of growing conditions and management of forest for continuous production".

Agreements so far entered into under the Act with eight of the ten provinces have resulted, by Mar. 31, 1955, in the aerial photography of all but about 137,000 sq. miles of an estimated 1,207,000 sq. miles to be covered and about three-quarters of the work of ground control survey, base mapping, photo interpretation and other operations required for up-to-date provincial forest inventories. In addition, under reforestation agreements, some 48,000,000 trees have been planted on nearly 50,000 acres and some 6,500 acres have been seeded. Total federal contributions to the provinces in the first four years of operations under the Federal-Provincial Forestry Agreements for inventory and reforestation totalled \$4,178,025 at Mar. 31, 1955.

## Forestry Research

In Canada, forest research usually means research in the forest itself or research directed towards the perpetuation of the forest. The term, forest products research, on the other hand, embraces all research work connected with the utilization of the forest. The high rates of utilization of forest products and the continued high losses caused by fire, insects and disease have created a growing urgency in the need for improved forest management practices in Canada. This entails accelerated forest research programs which must find the solution to many technical problems. Moreover, economic, social and legislative forces generally are all tending to hasten the development of forest management practices suitable to Canadian conditions as the true renewable nature of the forest as a great economic resource and its importance to all Canadians is more fully realized.

**Forest Research.**—In Canada, federal and provincial governments, universities, industrial research organizations and operating companies all have a hand in forest research. One Federal Government agency, the Forestry Branch of the Department of Northern Affairs and National Resources, is almost entirely a research organization devoted to the study of the forest and its products. The Forest Biology Division of the Science Service of the Federal Department of Agriculture conducts research into forest pathology and entomology and its studies of insect pests and tree diseases is a fundamental part of forest development and protection.

It must be realized that planned research in forestry and forest products is a comparatively recent growth. Beginning about the turn of the century, forest research developed slowly until the 1920's when the pace of research and the rate of utilization both rose rapidly; in post-war years, more rapid expansion and development has characterized research activities in this vital field. One reason for the initial slow development—and for the continued need for

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how they sur-  
d the winter.





progressive development—may be found in the fact that many of the problems under investigation are of a long-term nature and a practical analysis of findings may be long delayed. Because the life-span of forest trees and stands may vary from 60 to 150 or more years and cyclic variations in climate must also be taken into account, there are relatively few studies—except in the field of forest mensuration—in which reliable results can be obtained in less than ten years' time.

Another factor in the long-range nature of forest research is that the science of forestry draws from the subject matter of other related fields; the findings of the plant pathologist, geneticist and physiologist, the soil specialist, the meteorologist, and the organic chemist, for example, must be taken into account. For the forest is a complex living community—not only the nature of the individual tree must be studied, but the relationship of the tree to the surrounding plant community must also be considered.

In the field of silviculture and forest management, research studies the development of a satisfactory system for the classifying of forests and forest sites; determines the silvical characteristics of Canadian tree species and the ecological relationships of the associations in which they occur; develops methods of silviculture which are applicable to the more important forest types and to Canadian economic conditions; develops and tests practical methods for determining the actual and potential growth and yield of forests; develops improved techniques of reforestation, and of improved strains of tree species suitable to Canadian conditions; improves methods of organizing forest data into plans of regulation and silviculture for forest areas, which will be suitable to different intensities of management—the essence of the sustained-yield forest management program; improves research methods, mensuration techniques and the design of experiments.

An outstanding example of teamwork in forest research is an experiment started in 1953 on 375 acres of mixedwood forest in a pulpwood producing region on Lake Superior's North Shore. Its object is to determine the best methods of cutting and other suitable silvicultural treatments to achieve natural spruce regeneration in a region where re-establishment of spruce after logging is being handicapped by competition from herbs, shrubs and broad-leaved trees.

Various methods of treatment have been tried: certain areas have been sprayed with a toxic substance to poison growth of the competing plant life; in other areas, the soil has been scarified, using tractor and root rakes, to expose the mineral soil and allow nature herself to plant spruce seeds. The forest in the area is relatively old, has never before been cut over and was last burned over nearly 200 years ago. This experiment will have value in determining the approach to other overmature stands and even to younger, less mature stands growing under similar soil and climatic conditions.

Co-operating in the project are the Pulp and Paper Research Institute of Canada—which is co-ordinating the work—the Ontario Department of Lands and Forest, the Federal Forestry Branch of the Department of Northern Affairs and National Resources, the University of Toronto's Faculty of Forestry, the Abitibi Power and Paper Company and the owner of the experiment site, the Ontario Paper Company.

land of mature lowland  
white spruce in Riding  
Mountain National Park,  
southwestern Manitoba,  
with dense grass and tall  
ferns as ground cover.  
Among this picture are  
specimens of common va-  
rieties of Canadian forest  
flora. Identification of  
each ground cover aids  
the forester in determining  
suitability for forest site  
classification.



There is a continuing need to assess the current and potential supplies of wood in the country and this involves forest surveys and preparation of forest inventories. Canada has been a pioneer in the use of aerial photographs for the mapping and describing of large forest areas.

Specifically, forest inventory research deals with such matters as the preparation of air survey volume tables; the determination of methods of air photography best suited to forest requirements; the development of instru-

ments for use in forest inventory; investigation of methods of forest surveying with particular emphasis on sampling techniques and the correlation of air and ground data.

Protection of the forest is another field in which continuous research is going on, and the early detection of fire outbreaks, the best methods of handling them and a knowledge of climatic conditions in relation to fire hazard and fire spread are all part of the study. Specifically, research into forest fire protection deals with the preparation and simplification of forest fire danger tables; studies of the weather and the development of devices for measuring and integrating climatic factors as they affect forest fire danger and fire behaviour; development of methods for determining the severity of fire seasons and effectiveness of control of fire; determining a system for classifying fuel types; developing means for increasing the effectiveness of forest fire control, including methods for testing the efficiency of fire fighting equipment and practices; study of the influence of silvicultural practices on the occurrence and behaviour of forest fires; the collection, compilation and analysis of forest fire statistics.

**Forest Products Research.**—In earlier times, trees were cut either for fuel or for lumber, including planks, shingles, lath, dowels and other shapes and forms suitable for use in building houses, vehicles, ships and furniture. Much wood also went up in smoke as the settler cleared land for farming. Woods were used for elemental purposes, and the vast range of wood uses and wood derivatives known today were unknown and unthought of. The development in the 1840's and 1860's of the mechanical and sulphite processes for making pulp and paper changed all that. Today, an amazing "family tree" of products—tars, oils, chemicals, wood and ethyl alcohol, acetic acid, acetone, formaldehyde, essential oils, vanillin, wood flour, wall boards, insulating boards, paper and cardboard in many variations, veneers and plywoods, laminated beams, rayon, imitation leather, cellophane, phonograph records, linoleum, plastics, surgical dressings, yeast cakes, gun-cotton, photographic film—may trace their ancestry, directly or indirectly, to the forest. Many of these are by-products of the chemical pulping processes, and are produced from what were formerly "waste" liquors.

Trees have two basic components: cellulose and lignin. From the cellulose (and hemi-cellulose) component, whose chain-like molecular structure forms the fibres which are the base of Canada's vast pulp and paper industry, comes also the raw material for a wide range of plastics, explosives, film and other substances, as well as rayon and wood sugar. From lignin, unused in chemical pulping processes, comes another wide range of chemical derivatives: resins, fertilizers, certain plastics, vanillin, alcohol and many chemicals. Lignin moreover can be converted into an excellent fuel.

In the manufacture of mechanical pulp, or "groundwood" pulp as it is sometimes called, no chemical by-products are present. All the contents of the wood, including the lignin, are utilized in making the pulp. Newsprint is produced from mechanical pulp.

Many studies are being undertaken in Canada today—part of the wider world interest in wood research—in the development of new uses for wood, in



the determination of the most suitable uses for wood, as well as in problems connected with utilization of wood in all its forms for most economic use. For example, binder boards of good quality are being made from sawdust and from planer shavings, and sawdust is also being used as a soil "amender"—fortified with nitrogen it adds to the humus content of the soil, acting in many respects like fertilizer.

The Pulp and Paper Research Institute of Canada in Montreal, in the field of pulp and paper, and the Forest Products Laboratories of the Department of Northern Affairs and National Resources in Ottawa and Vancouver, in the general field of forest products research, are the main research bodies; university science faculties and commercial laboratories set up by the forest industries themselves are engaged in more limited investigations in many phases of the structure of wood, its development and use.

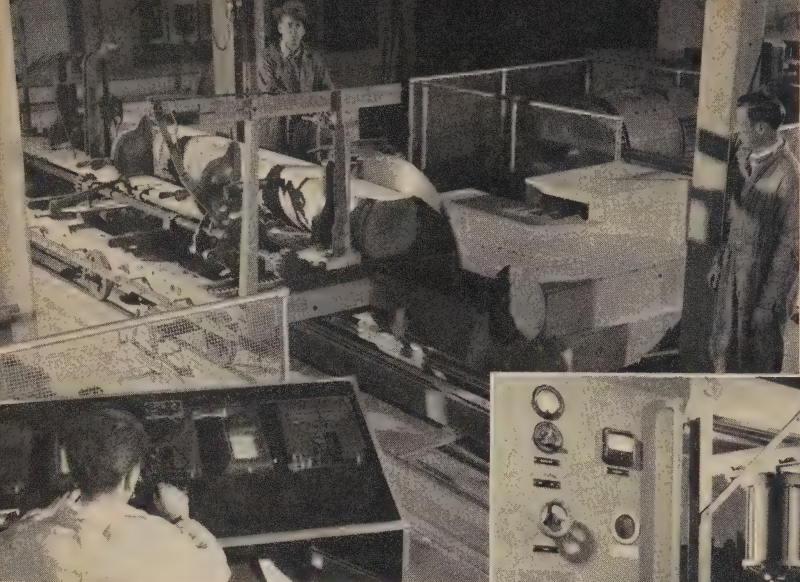
Forest products research is a very wide field. It includes, for example, the study of timber mechanics and determining new forms of wood construction, including laminations and arches, and research into plywood production—cutting, gluing and bonding. In laminated construction especially, size



*Improved equipment, detection and communication methods are making forest fire fighting more effective but such fires, caused mainly by careless campers and travellers in the woods, still result in tremendous damage. In 1954, 81,000,000 cu. feet of standing merchantable timber was consumed by fire.*

*The individual fire fighter with automatic or hand pump or other hand tools is the basis in active fire suppression.*

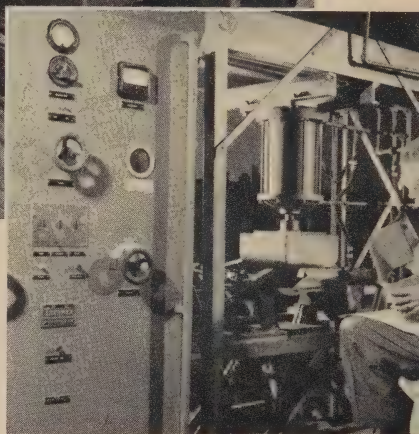




A dielectric  
heated  
rapidly  
duces  
plywood



▲  
*The circular headrig sawmill, in operation at the Forest Products Laboratories of Canada in Ottawa, is highly instrumented for research work.*



of the wood to be glued together to form large beams and trusses is quite independent of the size of the tree—quite small trees will furnish suitable wood. Plywood use in such fields as furniture-making, building construction, boat building, aircraft construction and container manufacture, for example, is well established.

Studies in wood preservation and in wood pathology are also necessary because, though wood under certain circumstances is one of the most durable of all materials, it will decay if improperly seasoned and is subject to attack by insects and fungi.

New and improved methods of cutting and of utilizing the tree from stump to top are being introduced and what was formerly considered wood waste—bark, slabs, edgings, sawdust—is now the focus of intensive experimentation for better utilization. Industry claims that much more pulp and paper is being produced from a cord of wood today than was being produced several years ago. Better means have been developed for using bark as a fuel, and more commercial products like alcohol, tanning liquor, road binders, turpentine and yeast are being made from what were formerly waste materials in the pulping process. Research has shown, moreover, that a number of species of trees once thought unsuitable can actually be used for pulping, thus increasing the yield per acre. In some areas industry has succeeded in making a virtually complete use of all species. Pulpwood goes to the pulp mill for



manufacture into paper, paper board, building board and hardboard; other trees are converted into plywood and sawlogs are turned into lumber. Slabs and edgings, chips and sawdust are likewise utilized.

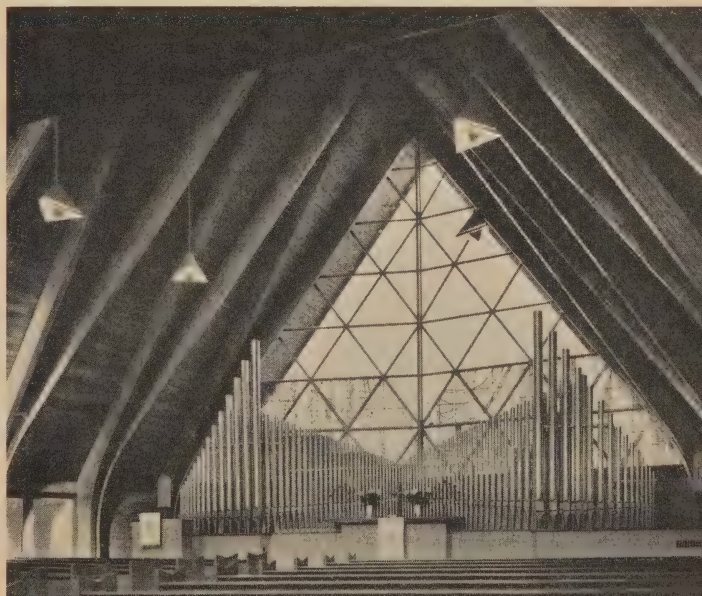
Studies are continuously under way into the secrets of wood chemistry and wood structure. Here, wood waste experimentation endeavours to produce various kinds of building boards and other products and from this research new and more economical alternatives to other structural materials may come, and new test-tube products added to the bewildering array already produced. A knowledge of the physical properties and the microstructure of wood is helpful in determining the reasons for unequal wood shrinkage in the seasoning process, in determining the tensile strength of wood, in finding out the degree of penetration of wood preservatives and, not least, the fibre length. Though paper making, for example, is based on the long fibres in wood, there must also be a percentage of short fibres so that thin spots in the finished paper may be avoided. A knowledge of wood structure helps make paper-making processes more effective.

Engineering advances based on research and operational experience, moreover, have—especially in the West Coast forests—increased output per man, lowered unit production costs and opened up forest areas which were once considered to be economically inaccessible.

Canada's contributions to forestry research—especially in view of its small population in relation to its immense geographic area and wide range of problems—have been truly remarkable, whether in the forest research carried on in the field or in the forest products research in the laboratory, with its testing machines and test-tubes—and always the mill and the factory in the background.

**Forest Biology.**—One of the prime requisites for a sound system of forest management is the protection of the forest from damage by insects and disease. The Federal Department of Agriculture keeps a country-wide sample check on insects through its continuing Forest Insect Survey, which

research in timber engineering has developed the use of laminated beams and trusses as heavy-duty architectural members, as in this church roof interior. Studies have shown that in certain types of structural assemblies, a ton of timber will carry more load than a ton of steel.





enables insect population trends to be forecast and which can warn of possible major outbreaks in time for preventive measures to be undertaken.

One of the largest and most dramatic chemical control operations ever undertaken against forest insects has been under way since the summer of 1952 against the spruce budworm in New Brunswick. The budworm is a defoliating insect which has seriously threatened the pulpwood forests in the northern half of the Province. By Mar. 31, 1955, a total of 3,600,000 acres were sprayed from aircraft and 600,000 acres were re-sprayed. At one stage in the spraying, studies showed from 87 to 99 p.c. mortality among the budworm larvae. Plans for 1956 call for spraying another 2,000,000 acres of forest using about seventy aircraft, operating from twelve airfields. Cost of the operation is being shared between the Federal Government, the Government of New Brunswick and the forest industries in the areas affected. The original three-year cost-sharing agreement between the Federal Government and the Government of New Brunswick, ending Mar. 31, 1956, has been extended for a further three years.

In the field of forest pathology, much research has been undertaken and remedial measures against forest diseases have been devised. A major cause of disease in trees is fungi, but bacteria, viruses and parasitic seed plants play their part. Research, moreover, has determined that there is a close correspondence between the incidence of disease and poor forest management practices, especially when cutting of overmature trees is neglected: an important function of forest pathology is to determine the age at which a tree species should be cut to give the maximum returns in sound wood.

**Farm Woodlots.**—Most farm woodlots—in Eastern Canada especially—are the cut-over remnants of the vast forests that once covered nearly all of



*Scientifically managed farm woodlot can produce many forms merchantable timber and can also be a source of beauty and pleasure near the farm home.*

the now inhabited portions of Canada. Given adequate protection from fire, grazing and trampling by livestock, and careless cutting, the farm woodlot not only provides the farmer with a perpetual source of supplementary income but it aids in controlling moisture run-off and consequent soil erosion. In 1953 there was an estimated 22,780,000 acres in farm woodlots in Canada and these contributed about \$46,000,000 to farm income from the sale of wood products, excluding maple sap products. At present in Canada, farm woodlots produce mainly fuelwood for use on the farm, as well as merchantable quantities of pulpwood, fenceposts, poles, ties and lumber.

## Forest Industries

In 1953, more than 354,000 people—one out of every 42 Canadians—were directly employed by the forest industries, and the salaries and wages they received amounted to an impressive \$1,098,000,000. This amounted to one-quarter of the salaries and wages paid to all the employees of Canada's 38,000 manufacturing establishments. The logging industry employed nearly 136,000 people (calculated on a man-year basis, because of the seasonal nature of much of this industry), the lumber industry hired 60,000, and the pulp and paper industry, 58,000. Wood-using industries and paper-using industries together employed 100,000 persons.

The net value of production of the forest industries in 1953 amounted to just under \$2,000,000,000 (\$1,987,974,000 more exactly), or about 25 p.c. of the net value of production of all Canadian manufacturing industries. The net value of production is the gross or sale value less cost of materials, fuel, purchased electricity and process supplies consumed.

**Woods Operations.**—The output of Canada's forests in 1953 was 0.4 p.c. higher in volume but 3.9 p.c. lower in value than in 1952. The actual "cut" in the forest in 1953 amounted to 3,579,336,000 cu. feet valued at \$783,546,958. Preliminary estimates for 1954 indicate an increase of approximately 100,000,000 cu. feet in the volume of the wood harvest over 1953. Ninety-four per cent of the merchantable timber cut in Canada in 1953 was retained in the country for immediate use or as raw material for further domestic manufacture and 6 p.c. was exported in manufactured or partly manufactured form.

### *Value of Primary Forest Production, 1952 and 1953*

Product	1952	1953
	\$	\$
Logs and bolts.....	304,262,790	308,965,959
Pulpwood.....	396,102,104	370,912,264
Fuelwood.....	61,355,643	62,766,922
Hewn railway ties.....	1,292,636	771,421
Poles.....	16,961,456	15,798,908
Round mining timber.....	19,917,669	8,530,523
Fence posts.....	3,432,675	3,062,977
Wood for distillation.....	441,443	415,271
Fence rails.....	758,519	679,151
Miscellaneous.....	11,126,259	11,643,562
<b>Totals.....</b>	<b>815,651,194</b>	<b>783,546,958</b>

The most important primary forest product in Canada is pulpwood and this heads the list of forest products by value in Quebec, Ontario, New Brunswick, Newfoundland and Manitoba. Second in importance are logs and bolts: these come first in value of production for British Columbia, Alberta and Nova Scotia. Fuelwood is third in national importance, followed by poles, round mining timber, fence posts and hewn ties.

Pattern of the industry is seasonal except in British Columbia where operations are fairly uniform throughout the year. East of the Rockies, operations in the woods are conducted at a time when other work is at low ebb. This has a stabilizing effect on the general employment situation and is especially valuable to farmers who thus have a source of supplementary income during the winter.

**Lumber.**—Production of sawn lumber in Canada in 1953 reached an all-time high of 7,305,958,000 ft. b.m., an increase of 5.1 p.c. over the previous peak in 1951. Because of lower prices, however, the total value of output, amounting to \$494,385,993, was 2.6 p.c. below the 1951 record. This production, less some amounts from small producing mills as well as custom sawing for other wood-using industries, was obtained from 8,194 sawmills. Provinces having more than 1,000 sawmills included British Columbia (1,824), Quebec (1,788) and Ontario (1,207). Mills range in size from giants (in British Columbia) capable of cutting as much as half a million feet board measure in a single shift to small mills producing one to two thousand feet a day. Seventy-nine mills, representing less than 1 p.c. of the total number of sawmills, accounted for over 45 p.c. of the total value of production. Most of the lumber cut in Canada is spruce with Douglas fir a close second. After these come hemlock, cedar, white pine and jack pine followed by balsam fir, yellow birch and maple. Spruce takes first place in total value.

Over 46 p.c. of the lumber produced in Canada in 1953 was exported at a value of just over \$283,000,000.

### *Production of Sawn Lumber and All Sawmill Products, 1953*

Province or Territory	Sawn Lumber Production		Total Sawmill Products
	'000 ft. b.m.	\$	\$
Newfoundland.....	48,922	2,809,172	3,147,960
Prince Edward Island.....	10,504	563,416	637,918
Nova Scotia.....	295,868	17,560,898	19,055,939
New Brunswick.....	335,078	21,802,348	25,490,363
Quebec.....	1,200,598	82,083,803	96,026,261
Ontario.....	823,721	63,275,565	79,573,208
Manitoba.....	55,527	3,491,815	3,920,005
Saskatchewan.....	81,596	4,604,386	4,908,053
Alberta.....	400,822	20,991,533	23,781,960
British Columbia.....	4,045,724	276,564,562	323,474,522
Yukon and Northwest Territories.....	7,598	638,495	677,515
<b>Canada.....</b>	<b>7,305,958</b>	<b>494,385,993</b>	<b>580,693,704</b>





*Huge stacks of pulpwood at the pulp and paper mills are a common sight across the country. Generally, it is trees of lesser diameter that are used as raw materials for the mills. There are vast areas of mature forests where the trees have not attained and never can attain sizes suited to the manufacture of good lumber. Their utilization as pulpwood has increased enormously the wealth of the forests of Canada.*

The 1953 gross value of \$580,693,704 included: sawn lumber (\$494,385,993); shingles (\$19,897,877); ties (\$14,408,175); box shooks (\$2,691,128); hardwood squares (\$1,999,065); flatted mine timbers (\$1,776,844); lath (\$1,686,581); staves (\$1,109,860); and pickets and headings (\$927,115).

**Pulp and Paper.**—From 1946 to 1954 continuously, the pulp and paper industry has ranked first in the gross value of its products among all manufacturing industry as well as first in wages and salaries paid. Except during the war years 1942-44, the industry also ranked first in net value of production, having achieved that position in 1920. With respect to number of persons employed it is now second only to sawmills.

In little over half a century the pulp and paper industry in Canada has become one of the world's great industrial enterprises. Several factors have been responsible: Canada possesses over half the pulpwood resources of North America; cheap and abundant water power is found close to pulpwood stands, and extensive river systems can be used to transport pulpwood to the mills. Contributing factors are the growth of population on the North American Continent, increased literacy and the growth of voluminous daily newspapers, the adoption of technical improvements in the building and printing trades and the advance of modern merchandising techniques—the development of

product packaging and its display in self-serve supermarkets, for example. Recent developments in the use of chemical pulp by-products and the unused wood from sawn lumber operations have contributed to greater utilization of formerly waste wood products and have created whole new industries with growing market potential.

In 1954, the value of factory shipments of the pulp and paper industry rose to \$1,241,558,451—an all-time record. The net value of production at \$641,410,070 was 6.9 p.c. above the 1953 figure and—as a measure of the industry's growth in the past three decades—was 425 p.c. higher than pre-depression 1929. In 1954 there were 125 operating mills; of these, 31 were classed as pulp mills, 25 as paper mills, and the remaining 69 as combined pulp and paper mills.

*Principal Statistics of the Pulp and Paper Industry, 1930, 1940,  
1953 and 1954*

Item	1930	1940	1953	1954
Establishments.... No.	109	103	127	125
Employees..... "	33,207	34,719	58,194	60,837
Salaries and wages.....\$	45,774,976	56,073,812	235,741,660	252,598,383
Gross value of products..\$	215,674,246	298,034,843	1,179,665,443	1,241,558,451
Net value of products...\$	107,523,731	158,230,575	599,934,934	641,410,070
Pulp produced.....tons	3,619,345	5,290,762	9,077,063	9,673,016
	\$ 112,355,872	149,005,267	624,865,504	655,916,738
Paper produced.....tons	2,926,787	4,319,414	7,376,526	7,649,607
	\$ 173,305,874	225,836,809	887,858,473	925,590,643
Pulp exported.....tons	760,220	1,068,516	1,950,152	2,180,416
	\$ 39,059,979	60,930,149	248,674,880	271,418,005
Newsprint exported tons	2,332,510	3,242,789	5,375,251	5,521,530
	\$ 133,370,932	151,360,196	619,033,394	635,669,692

Sixty-five mills accounted for 91.2 p.c. of the gross value of production of the industry in 1953. The 100 mills manufacturing pulp produced 9,673,016 tons valued at \$655,916,738 in 1954, representing increases of 6.6 p.c. in volume and 5 p.c. in value over 1953. About 23 p.c. of the total pulp production was made for export, 73 p.c. for use by the mills themselves in paper-making and 4 p.c. for sale in Canada. Groundwood or mechanical pulp formed 55 p.c. of the total pulp production; sulphite pulp, 27 p.c. and sulphate pulp, 14 p.c. Quebec province leads in pulp manufacture, followed by Ontario, British Columbia, New Brunswick, Newfoundland, Nova Scotia, Manitoba and Alberta, in that order. Quebec and Ontario together account for 70 p.c. of the total production.

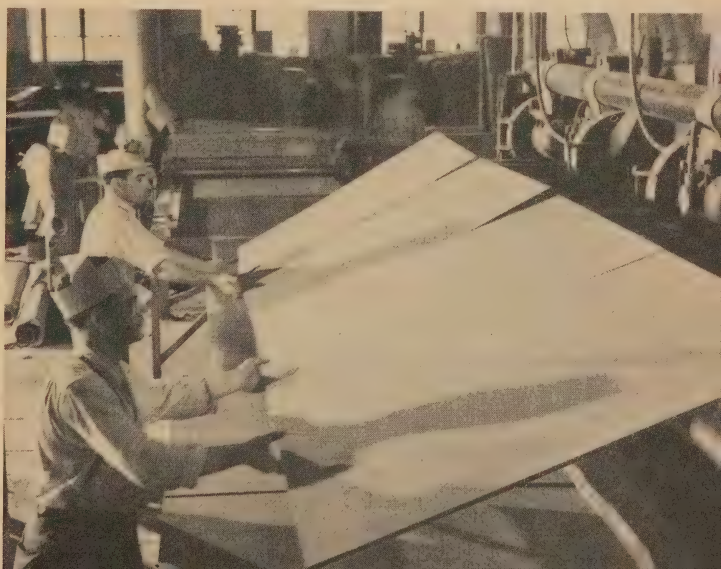
Among the many kinds and grades of paper and paper boards produced in Canada, newsprint is the top product, forming 78 p.c. of the total and 98 p.c. of the amount exported. Quebec and Ontario together accounted for 74 p.c. of all newsprint produced in Canada in 1954. Nineteen fifty-four's 6,000,895 tons of newsprint was the highest production ever recorded in Canada and was valued at \$657,487,344, increases of 4.3 p.c. in tonnage and 3.8 p.c. in value over 1953. Fifty-two per cent of world newsprint requirements was supplied by Canada in 1953 and in that year the United States took 88 p.c.

of Canada's exports of more than 5,521,000 tons; the remainder was distributed among 65 other countries. Of the fifteen leading commodities exported from Canada in 1953 and 1954, newsprint was first and pulp fourth in export value for both years. Though pulp and newsprint move freely on world markets, fine and specialty paper and other paper products are subject to tariff restriction. In consequence, Canadian manufactures in this field are largely for domestic use and considerable quantities are also imported. In 1954, Canada imported paper and paper goods valued at nearly \$44,000,000, including fully manufactured articles and specially processed goods for use in Canadian paper-making industries. Domestic production of papers and paper boards in 1954 totalled 7,649,607 tons valued at \$925,590,643.

**Wood-Using Industries.**—This group comprises thirteen industries, other than sawmills and pulpmills, using wood as their principal raw material. In 1953, these industries, comprising 4,268 establishments, gave employment to 73,377 persons and paid out \$183,488,249 in salaries and wages. The gross value of their products was \$661,321,108 and the net value \$308,315,617. The furniture industry (which includes metal furniture as well) accounted for \$231,557,354 of the total output, the sash, door and planing mills industry for \$200,929,152, the veneer and plywood industry for \$97,259,976, and the hardwood flooring industry for \$14,142,420. The other industries making up the remaining \$131,574,626 included: boxes, baskets and crates; wood-turning; morticians' goods; cooperage; woodenware; lasts, trees and wooden shoefindings; beekeepers' and poultrymen's supplies; excelsior; and other wood-using industries.

**Paper-Using Industries.**—Three industries engaged primarily in manufacturing commodities of paper and paperboard constitute this group, which, in 1953 comprised 415 establishments, employed 36,242 persons and distributed \$74,366,047 in salaries and wages. The gross value of factory shipments was \$388,585,078 and the net value \$167,338,649. The paper box and bag industry contributed products valued at \$198,540,167 to the total output, the roofing paper industry \$42,773,977, and the miscellaneous paper goods industry \$147,270,934.

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*The "mixed" farm, which produces grain to be used as feed for small herds of dairy or meat animals and small flocks of poultry, is still prevalent in most of the agricultural areas of Canada. Here father and son harvest a crop of oats which will be stored on the farm and fed to their livestock during the winter months.*

# Agriculture

CANADA has 174,000,000 acres of occupied agricultural land. Its 623,000 farms are distributed roughly across the southern portion of the country and on them live more than 2,800,000 of the nation's 16,000,000 people. The growing of agricultural crops is still Canada's leading primary industry and upon the prosperity of the farmer, particularly in the predominantly agricultural areas of the mid-west, depends the prosperity of other sectors of the economy.

As an employer, however, agriculture is giving way to manufacturing. In 1954 the number of people earning their livelihood on farms dropped to 889,000 from 1,364,000 in 1939. This does not mean that agricultural production has declined accordingly. Specialization and highly mechanized farm operations now permit much greater production with less manual labour. Harvesting, particularly on the larger prairie farms which not so long ago required thousands of part-time workers, can now be conducted with a great deal less seasonal labour and there is scarcely a farm of any size or type across the country that has not some mechanical equipment that assists the farmer to increase his productivity. Increasing population and rising income levels generally are creating greater demand for a constantly widening variety of foods in new forms, and the primary agriculture industry, together with the processing and distributing industries, is meeting the challenge. In 1953, 22.7 p.c. of the raw materials used in Canadian manufacturing industries came from Canadian farms.

Canada supplies most of its own needs for foodstuffs. Fruits from warmer climes as well as cane sugar, coffee, tea and spices and some out-of-season vegetables are imported, but otherwise Canada is largely independent in this sphere. Newfoundland is the only Province in which agriculture is of minor importance. The many variations in climate and soil of the country generally contribute to the production of a great assortment of farm products. In most of the provinces, the "mixed" farm predominates and even in areas that have become specialized in one type of farming or another, the mixed farm is still to be found. It usually produces one or more kinds of grain which is used as feed for small herds of dairy or meat animals and small flocks of poultry. The livestock is grazed on pasture in summer and, in winter, is fed (in addition to the grain) hay and other home-grown forage crops that have been stored on the farm.

Farming in Canada was founded on this type of farm. Louis Hébert, Canada's first farmer, had a "mixed" farm. In 1617 he cleared and cultivated land where the city of Quebec now stands and raised grain, pumpkins and beans as well as animals from stock brought from France. In Eastern Canada generally, as incoming settlers cleared the forest, livestock grazed among the stumps while the land was being cleared for cultivation of crops of wheat, feed grains and hay. Later as the farmer became less isolated and less dependent on the work of his own hand for all his needs, when transportation opened up more distant markets, he turned to specializing in crops best suited

to his particular area. The first specialization was perhaps in the Bay of Fundy region of Nova Scotia where orchards were planted and, close to the towns, vegetables were grown as special crops.

This process of specialization was quite slow in the Maritimes and Quebec and also to some extent in Ontario. But in the mid-west the specialized farm came with settlement. Prairie land required only breaking, disking and seeding to produce abundant crops of wheat and other grains. Land was relatively cheap and large acreages could be handled by a farm operator with additional help at harvest without the labour of caring for livestock.

In recent years the introduction of power and labour-saving machinery has intensified the trend towards specialization because fewer machines are required to produce one or two types of crop or livestock and a larger volume of production per unit reduces operating costs. Also the standard of quality demanded by the consumer requires specialized knowledge and it is easier to acquire the skill necessary to produce one or two top-quality products than half a dozen.

There are, of course, varying degrees of specialization practised today. Because season and market conditions are so variable, few farmers risk dependence on a single source of income. In the drier areas of the prairies wheat is the major crop but in other sections wheat is supplemented by oats, barley or flax and, where forage crops can be grown, livestock is raised. Along the rivers in southern Alberta and southwestern Saskatchewan over a million acres of land are under irrigation or will be in the near future. Here 30,000 to 40,000 acres of sugar beets are harvested and more and more vegetable crops, such as peas and sweet corn, are required to supply the canning and freezing plants established in the area. Legume crops for seed and forage and winter wheat are also important. Large areas in the foothills and plateaux of the Rocky Mountains are devoted to cattle or sheep ranching and sheep are also ranched on the open plains. Farmers with dry land near irrigation projects keep their animals for fattening on the by-products of irrigated crops. Special crops for vegetable oil production, such as sunflowers, rapeseed, flaxseed and safflower, are grown in various parts of the Prairie Provinces.

Ontario's major farming area is in the triangular section between Lake Huron and Lakes Erie and Ontario. This area extends farther south than any other portion of Canada. Its southern tip is in the same latitude as northern California and, coupled with this fact, its climate is subject to the moderating influence of the Great Lakes and permits the growth of a great diversity of farm products. Over thirty different crops of commercial importance have been found adapted to this area. Corn grown for hybrid seed or sold to starch factories or as feed for livestock, soybeans for oil and meal, field beans, winter wheat and winter barley, tobacco, early potatoes, sugar beets and fruits such as apples, peaches, pears, cherries and grapes are the most important. A wide variety of vegetables is grown for both the fresh market and processing. Greenhouse crops for the vegetable and the florist trade are also important. This is the most densely populated section of Canada and most of the farm products are locally consumed, except tobacco and cheese.

The fertile farming area extends eastward along the St. Lawrence into Quebec as far as Quebec city and in this extension farmers depend particularly on the dairy industry, with bacon hogs, poultry and sheep as sidelines. Small areas of Quebec are adapted to fruit growing, chiefly apples, to special types of



tobacco, sugar beets and flax. Around Montreal and other urban centres, market gardening has an important place. Quebec also produces about 90 p.c. of Canada's crop of maple sugar products which has an annual value of six to ten million dollars.

Dairy farmers, those whose chief income is derived from the sale of milk or surplus breeding stock, are mostly located within economic trucking distance of the larger towns and cities in all provinces. At greater distances dairying is combined with bacon hog production, raising of poultry, and the sale of cash crops such as potatoes or grain, each selected according to its adaptability for a particular area.

The somewhat acid soils found in the Atlantic Provinces—New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland—are very suitable for the growing of potatoes. Along the St. John River valley in New Brunswick and in Prince Edward Island, large acreages per farm are grown, providing an excellent illustration of the development of a special crop in an area to which it is particularly adapted. The farmers of Prince Edward Island have specialized in seed potatoes to the extent that about 43,000 of the Province's 428,000 acres under crop are devoted to potatoes.

Prince Edward Island started another special type of farm—the first fur farm in Canada for the breeding of foxes in 1887. Ranches for foxes and other fur animals have since spread to all the provinces and by 1938 the number of fur farms in Canada reached 10,454. Loss of markets during the War reduced the number of fur farms to 3,492 in 1950 but the number of fur-bearing animals raised continued to increase gradually with mink replacing fox as the most popular type of fur. Among other animals now raised successfully on fur farms are: chinchilla, raccoon, marten, fisher, fitch and nutria.

The production of pure seed is also included as a specialized crop on farms in all sections of Canada, the types depending on location. Most of the

born ewes with their  
lamb welcome the  
first warm sunshine of  
spring on a British  
Columbia hillside.  
Sheep-raising is fairly  
common on the ranch-  
lands of southern Al-  
berta and British  
Columbia, as well as  
some sections of  
Ontario and Quebec.



seed requirements of Canadian farmers are met from Canadian-grown seed—imports and exports are about equal. British Columbia, because of its mild winters, is the chief producing area for vegetable seeds. The Province also specializes in fruit, growing apples, pears, peaches, plums and prunes, cherries, apricots, strawberries, raspberries, grapes and loganberries. Flowering bulbs and a small acreage of holly for the Christmas trade are also specialties.

In addition to the "mixed" farmer and the "specialized" farmer a third class has become quite prevalent in certain areas. This is the "part-time" farmer who owns and lives on a farm but takes seasonal work in other industries and is not dependent on the farm alone for his income. Most of them have small acreages on which they produce food for the family with sometimes a small surplus for sale to neighbours or the local market. In the coastal areas and around the large inland lakes, the part-time farmer is also a fisherman. In forested areas he works in the lumber camps in winter. Growth and decentralization of industrial enterprises, the five-day week, and the widespread use of the automobile, have made it possible for an increasing number of farmers near industrial plants to combine some farm operations with work in the factory. Individually small, the combined production of these part-time farmers is an important item in Canada's total food supply.

This gives some idea of the range of agricultural production in Canada and the degree of specialization. The growing of grain and forage crops and the raising of livestock provide by far the major source of farm income.

## **Government and Agriculture**

The agricultural industry is a most complex one and the Federal Government as well as the provincial governments have long realized the intricate production problems that face the farmer. For this reason each government has established a department to assist the farmer in almost every field of his activities. These departments, along with their organization of scientists, technicians and fieldmen, work in close co-operation. In addition, services are necessary which will assure that food products are suitable for human consumption and are graded in accordance with established standards. This is particularly necessary for the many farm products, such as meats, dairy products and canned foods, that require considerable processing before they are ready for marketing. Standards are also necessary for farm products not grown for food such as seeds, livestock feeds and many products used by other industries. Also, such farm supplies as fertilizers, pesticides and the like, must conform to established regulations.

The work of the Federal Department of Agriculture may be divided into five main functions: research and experimentation; production and protection of crops and animals; marketing, including grading and inspection; price stability in marketing; and reclamation and development.

**Research and Experimentation.**—Research and experimentation covers almost every kind of technical problem met by farmers in the production and marketing of their commodities as well as those problems involved in the processing, curing, storing and distribution of farm products.

To carry on this vast and varied work, the Federal Department of Agriculture has a chain of experimental farms and research laboratories located across the country. They are situated where they can best serve the

Part-time farming is becoming fairly prevalent as a result of the trend toward decentralization of industry, the shorter industrial work-week, the availability of labour-saving farm machinery and good transportation facilities.



A farmer works his land at night and on weekends and is employed during the week in the cafeteria of an industrial plant in a nearby town.



needs of a wide variety of farming enterprises and of specialized areas of soil and climate. The work is co-ordinated through the headquarters of the Experimental Farms Service and the Science Service at Ottawa, where research is also constantly under way. Among the best known results of the Department's research are the origination of many new varieties of field crops and horticultural plants, methods of controlling pests and diseases, and soil fertility findings which have improved production and lowered costs. Discoveries in the field of animal diseases include the development of vaccines and other controls which have contributed materially to a high level of health in Canada's livestock and poultry.

An important and often misunderstood aspect of this research is that it must be continuous, for new problems constantly arise; indeed, the solution of



one problem often leads to others. One example is the work on cereal grains, which opened up the Canadian West. When cereal grains were first cultivated by man, plant diseases probably caused little damage. Through the years, by selection and breeding, better sorts or varieties were developed, more suited to the many different climatic and soil conditions. Today these crops are grown in many parts of the world and millions of bushels are harvested annually. In the meantime the diseases, at first thought so unimportant, developed and have caused enormous losses except where measures for their control are known and practised. To control a disease such as wheat bunt or stinking smut, the farmer has only to treat seed with a fungicide before sowing his grain. To control cereal rusts, which from time to time have threatened much of Canada's wheat crop, there is only one practical method of control, and that is by breeding rust-resistant varieties. Breeding and testing these varieties is so scientific and complex that government institutions have had to undertake the work.

There are some five million acres of wheat in Manitoba and southeastern Saskatchewan where a profitable crop is unlikely to be harvested unless farmers can sow rust-resistant varieties. In 1904, 1916, and almost every year until 1938 heavy losses occurred from wheat rust. Breeding for rust resistance began in earnest in 1925. From 1938, when sufficient seed of the first rust-resistant varieties was available to sow large acreages, until 1950 when these varieties began to be attacked by new races of rust, there was an annual saving of about 40,000,000 bu. of wheat. After 1950 the new rust races increased rapidly and in 1954 a rust epidemic destroyed an estimated 135,000,000 bu. But now a new rust-resistant variety, named *Selkirk*, has been introduced and losses in 1955 were again confined to susceptible varieties. Agricultural scientists are on the alert and are constantly breeding new varieties to combat different races of rust which might become epidemic in the future.

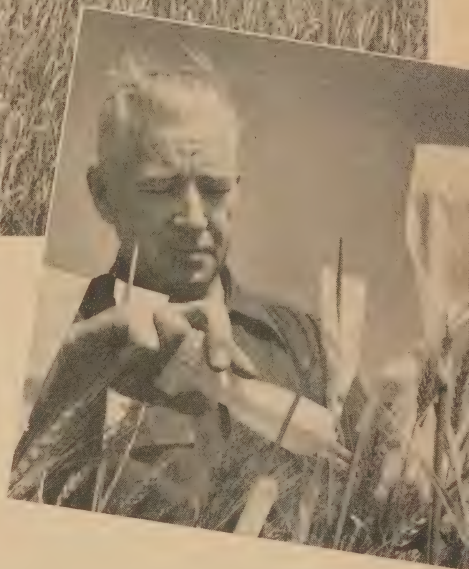
**Production and Protection of Crops and Animals.**—The Health of Animals Division and the Plant Protection Division are concerned with protection against importation of disease and pests and carry on extensive testing and control work within the country to keep down the spread of disease. Control of tuberculosis and many other contagious diseases in animals is typical of this work. Over half of the cattle in Canada are now in accredited areas, that is, in areas in which not more than one-half of one per cent of the cattle were found to be affected with tuberculosis at the latest TB test. Slightly over one-half of the remaining cattle are in tested areas which have not yet reached accredited status or areas where the accreditation has expired. When the remaining cattle have been tested and the reactors moved, a second test will probably show that the entire country can be classed as an Accredited Area. All meat animals are subject to veterinary inspection both before and after slaughter and regulations govern the methods used and sanitary conditions of meat and other processing establishments.

The promotion of the production of certified and registered seed and purebred livestock is also of great importance. Certification is maintained over registration and distribution. Standards are maintained which are



*A test plot of wheat is harvested at the Central Experimental Farm, Ottawa. Much of the work of the federal experimental farms is concerned with crop plants for, after the soil itself, they are of chief importance. Breeding and testing of grain is under continual study.*

*Protective covers are placed on barley heads to prevent cross-pollination.*



widely accepted in other countries. Another type of activity is the enforcement of laws governing the sale of feeds, fertilizers, pesticides and many other products purchased by farmers.

**Marketing, including Grading and Inspection.**—Marketing activities, in general, consist of the establishment and enforcement of national standards for animal, dairy and poultry products, for canned foods, and for many fruits and vegetables. These standards are enforced by grading or inspection of commodities entering interprovincial and export trade. By arrangement and collaboration with provincial authorities, many commodities produced within provincial boundaries are inspected and graded. (See p. 240 for information on co-operatives.)

**Price Stability.**—Canada, like most agricultural countries, has measures designed to give price stability in marketing. Under the Agricultural Prices



*Water conservation dam in southern Alberta. Irrigation is transforming thousands of square miles of formerly dry lands into areas of high agricultural production.*

Support Act, 1944, the Federal Government may stabilize the price of any agricultural product (except wheat, which is handled separately) by outright purchase or by underwriting the market through guarantees or deficiency payments. This Act has been used to good purpose to stabilize the price of products such as butter and eggs which normally are subject to somewhat violent seasonal price fluctuations. It is also valuable in handling surpluses of a temporary nature. Farmers who market their products co-operatively can be assisted under the Agricultural Products Co-operative Marketing Act. Since 1939 the Act has aided farmers in pooling returns from the sale of their products by guaranteeing initial payments.

Another measure of considerable importance in price stabilization is the Agricultural Products Marketing Act, 1949. A number of provincial governments have established boards to control or regulate agricultural products produced and marketed within the province concerned. This Act enables such provincial marketing legislation, or any particular part of it, to be applied in the same way to the marketing of agricultural products outside that province and in export trade. The Prairie Farm Assistance Act, 1939, gives financial aid to Prairie Province farmers who suffer partial or total crop failure during years of drought.

**Reclamation and Development.**—For many years the Federal Government has provided financial assistance in connection with land and water resources. The work is done under the Prairie Farm Rehabilitation Act, 1935. The administration of the Act is broad enough in its scope to meet the problems of rehabilitation, and flexible enough to enable formulation of joint policies with each provincial government, the rural municipalities or the farmer himself. The activities are classified as either intermediate or long-term. The intermediate program includes projects concerned with soil drifting on good lands; water developments for small farms; development of irrigation for feed production on a watershed basis; and community pastures. Water developments for small farms include dugouts, stock-watering and individual irrigation, the engineering and financial assistance for which extends to about one-third of the cost. Long-term projects involve many years of study.



Engineering surveys are only a part, and it is necessary to have surveys of soil, economical water supply, climate and all those matters that affect land and people. Such projects include the St. Mary River Dam, completed in 1951, a key structure to bring water, when and where needed, to about 500,000 acres of fertile land in southern Alberta. Mention should be made of the marshlands rehabilitation in Nova Scotia and New Brunswick, where the Federal Government, along with the two provincial governments, has undertaken on a joint basis to preserve, and in some areas to restore, the productivity of rich agricultural lands which are threatened by the sea in the Bay of Fundy. Some work has also been done in Prince Edward Island.

**Farm Credit.**—The Federal Government has made provision for the extension of credit to farmers under two Acts. The Canadian Farm Loan Act gives long-term and short-term farm mortgage credit and the Farm Improvement Loans Act provides intermediate-term and short-term credit to enable farmers to equip, improve and develop their farms.

## • *Statistics of Agriculture*

### *Farm Income*

The net income of Canadian farm operators from farming operations has dropped each year since the record level of \$2,154,500,000 was reached in 1951. In 1954 net income was \$1,125,641,000, a figure considerably lower than the post-war average (1946-53) of \$1,611,600,000. Poor crops in Western Canada were the principal cause of the 33-p.c. drop in 1954 as compared with

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*A sprinkler system distributes water from a nearby slough over a 200-acre field in the semi-arid interior of southern British Columbia.*





Tomatoes produced in greenhouses with the aid of electrically operated heaters, supply off-season market.

1953. The decline of 19 p.c. in gross farm income far more than offset a 2-p.c. decrease in farm operating expenses and depreciation charges.

### *Net Income of Farm Operators from Farming Operations, 1951-54*

Item	1951	1952	1953	1954
	\$'000	\$'000	\$'000	\$'000
1. Cash income.....	2,816,461	2,849,310	2,776,003	2,377,834
2. Income in kind.....	408,613	413,496	400,445	391,986
3. Value of changes in inventory.....	353,379	237,742	50,263	-145,088
<b>4. Gross Income (Items 1 + 2 + 3)</b>	<b>3,578,453</b>	<b>3,500,548</b>	<b>3,226,711</b>	<b>2,624,732</b>
5. Operating expenses and depreciation charges.....	1,434,282	1,582,206	1,528,678	1,501,518
6. Net income, excluding supplementary payments (Item 4-5).....	2,144,171	1,918,342	1,698,033	1,123,214
7. Supplementary payments.....	10,356	5,131	1,572	2,427
<b>8. Net Income of Farm Operators from Farming Operations....</b>	<b>2,154,527</b>	<b>1,923,473</b>	<b>1,699,605</b>	<b>1,125,641</b>

Cash income from the sale of farm products is the most important item of net farm income and represents receipts from all products sold off farms during the year together with participation payments on the grain crops of previous years. For 1954, this income was estimated at \$2,377,834,000, about 14 p.c. lower than the total for 1953 and 16 p.c. below the all-time high attained in 1952. Nearly all of the reduction in cash income took place in the Prairie Provinces and was the result of a substantial decrease in the marketings of grains, particularly of wheat, and lower prices for both wheat and barley.



## Cash Income from the Sale of Farm Products, by Province, 1952-54

Province	1952	P.C. of Total	1953	P.C. of Total	1954	P.C. of Total
	\$'000		\$'000		\$'000	
Prince Edward Island...	31,998	1.1	22,832	0.8	24,031	1.0
Nova Scotia.....	40,207	1.4	41,319	1.5	43,017	1.8
New Brunswick.....	53,445	1.9	46,141	1.7	48,419	2.0
Quebec.....	417,377	14.6	393,251	14.2	407,947	17.2
Ontario.....	736,887	25.9	718,862	25.9	704,544	29.6
Manitoba.....	249,634	8.8	220,038	7.9	186,508	7.9
Saskatchewan.....	710,738	24.9	742,236	26.7	472,297	19.9
Alberta.....	505,070	17.7	486,475	17.5	385,694	16.2
British Columbia.....	103,954	3.7	104,849	3.8	105,377	4.4
<b>Totals.....</b>	<b>2,849,310</b>	<b>100.0</b>	<b>2,776,003</b>	<b>100.0</b>	<b>2,377,834</b>	<b>100.0</b>

## Cash Income from the Sale of Farm Products, by Source, 1954

Source	Cash Income	Source	Cash Income
	\$'000		\$'000
Grains, seeds and hay.....	630,426	Miscellaneous farm products....	44,634
Vegetables and other field crops...	167,710	Forest products sold off farms...	83,336
Livestock.....	841,535	Fur farming.....	12,192
Dairy products.....	426,188		
Fruits.....	46,380		
Eggs, wool, honey and maple products.....	125,433	<b>Cash Income from Sale of Farm Products.....</b>	<b>2,377,834</b>

Income from the sale of wheat declined from \$654,100,000 in 1953 to \$322,600,000 in 1954. Farmers' deliveries during the year totalled about 288,000,000 bu., only a little more than half the amount delivered in 1953. Wheat prices, too, were below the 1953 level and participation payments were

*A trend is developing away from conventional farm buildings for the housing of cattle in Eastern Canada. Pole barns with self-feeding facilities are contributing to lower costs, labour savings and improved herd health.*







*Contestants study soil in a land-judging competition held on an Ontario farm.*

down from \$125,400,000 to \$97,400,000. Lower marketings of oats and barley and lower prices for barley brought down substantially the income from the sale of coarse grains, and participation payments for these two grains were also down. Smaller returns were obtained from the sale of rye, corn, potatoes, vegetables and sugar beets but some increase was realized from flaxseed, hay, tobacco, and clover and grass seed.

Increased marketings of all classes of livestock and higher prices for hogs brought the receipts from the sale of livestock up 7 p.c. from the 1953 level. Income from dairy products reached a high point of \$426,200,000, increased production more than offsetting lower prices. However the higher marketings of eggs did not counterbalance substantially lower prices and income from this item dropped to \$112,200,000 from \$136,300,000 in 1953. On the other hand, income from poultry meat at \$136,500,000 was a little above 1953 receipts.

There was a sharp reduction in the value of year-end changes in farm inventories. Livestock numbers continued to build up during the year but their value was far more than offset by the much lower stocks of grain on farms at the year end. Farm operating expenses were about 2 p.c. lower than in 1953 and 5 p.c. below the peak level reached in 1952. The smaller prairie grain crops resulted in lower share-rent payments which in turn brought the gross farm rent down by nearly 41 p.c. Expenditures for hired labour were down by 8 p.c. mainly because lower wages were paid during the year. The 3-p.c. decrease in fertilizer outlay reflected a reduction in quantities used. Shipments of prepared stock and poultry feeds and the movement of western

grain under the Federal Freight Assistance plan were well above the 1953 level and, although prices were lower, the total cost of feed and seed purchased by farmers was more than 3 p.c. above 1953.

*Estimates for 1955.*—Early estimates indicate that farm cash income in 1955 will not be significantly different from the 1954 total. However, when a much higher value of year-end changes in inventories is added to this income and allowance made for only slightly higher farm operating expenses and depreciation charges, the resultant farm net income for 1955 is expected to be well above that of 1954. It is anticipated that income from the sale of wheat will be above 1954 as a result of higher total marketings. Marketings of livestock, particularly hogs, will also be higher. Cattle prices will remain about the same but hog prices will average much lower so that returns from livestock may not vary greatly from 1954 experience. Higher share-rent payments resulting from substantially larger grain crops in 1955 will raise operating expenses and also, because of the larger crop and heavy carryover in commercial farm-held grain channels, stocks at the year-end will be significantly higher.

### Field Crops

Seeding was somewhat late in many parts of Canada in 1955 but weather conditions during the summer and autumn were generally favourable to good growth and development of crops. Average yields per acre for all but four of the twenty-one field crops either equalled or exceeded those of 1954. The exceptions were buckwheat, dry peas, rapeseed and field roots. Estimated production was greater than in 1954 for all crops except winter wheat, fall rye, buck-



wheat, dry peas, field roots and sugar beets, and was also greater than the ten-year (1945-54) average for most major crops. New production records were set in 1955 for corn for grain, soybeans and mustard seed and next-to-record crops of flaxseed, mixed grains and rapeseed were harvested.

Total marketings of the five major grains in Western Canada in 1954-55 amounted to some 524,600,000 bu. compared with 608,300,000 bu. in 1953-54 and the ten-year (1943-44—1952-53) average of 558,100,000 bu. Combined exports of the five grains, including wheat flour, rye flour, rolled oats and oatmeal in grain equivalent, totalled 366,900,000 bu. as against 437,800,000 bu. in 1953-54 and the ten-year average of 381,700,000 bu. Largely as a result of the smaller 1954 crop, combined stocks of the five major grains in all positions at July 31, 1955, were estimated at 694,900,000 bu., a drop of 22 p.c. from the



previous year's record 895,200,000 bu. but 91 p.c. above the ten-year average of 363,700,000 bu. However, increased production in 1955 has resulted, with the exception of rye, in larger supplies for the 1955-56 crop year. Total supplies of the major grains for 1955-56, consisting of the July 31, 1955 carry-over and 1955 production, were estimated in millions of bushels as follows (1954-55 figures in parentheses): wheat, 993,800,000 (910,800,000); oats, 487,800,000 (432,600,000); barley, 343,300,000 (321,400,000); rye, 33,200,000 (33,500,000); and flaxseed, 22,700,000 (13,800,000).

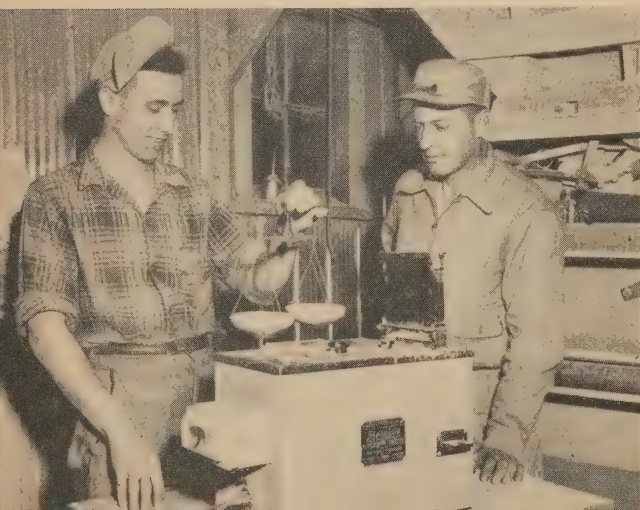
More than 90 p.c. of the 1955 western crop of hard red spring wheat is expected to fall in grades 1 to 4 Northern. The average protein content of the crop was 13.0 p.c., 0.4 p.c. higher than the 1954 average. Taking into consideration the quantities of low-grade wheat still available from the 1954 crop, Canada is in a position to supply the market with a full range of milling and feed grades during the 1955-56 crop year.

With abnormally large supplies of grain in the country and a tendency toward contraction in foreign demand, the pressure on Canada's grain storage and handling facilities remains unrelieved. The Canadian Wheat Board has had to review continuously the situation with respect to the provision of adequate supplies of the various grains at the right time and in the desired positions to meet both domestic and export commitments. At the same time the Board has endeavoured to ensure that all western producers in the Board's 'designated area' have the opportunity of delivering grain in as equitable a manner as possible.

The delivery quota policy with respect to initial\* and general† quotas in 1955-56 is essentially unchanged from that in effect in 1954-55. At the close of the 1954-55 crop year all but 28 closed stations were on an 8-bu. general quota and, with the storage position still very tight, it was necessary to extend this quota (on old crop grains) well into November of the new crop year. At Dec. 28, 1955, some 842 delivery points out of a total of 2,080 were on a 1-bu. general quota; 321 were on a 2-bu. quota; 92 were on a 3-bu. quota basis while

\*The initial quota consists of 100 units, each unit being the equivalent of 3 bu. of wheat or 8 bu. of oats or 5 bu. of barley or 5 bu. of rye.

†The general quota is based upon bushels per 'specified' acre, the 'specified' acreage consisting of each permit holder's acreage seeded to wheat (other than durums), oats, barley or rye, plus his acreage in summerfallow in 1955.



*Shelling and drying of corn is an automatic process. An electronic tester determines moisture content before it is put through the dryer.*



corn is almost exclusively an Ontario crop—22,000,000 bu. were harvested in that Province in 1954, adding \$13,000,000 to the farmers' cash income. Besides its popularity as canned food, it is used in breakfast cereals, as livestock feed and in the manufacture of syrup, starch, paper, textiles, cooking oils and even antibiotics.



814 were still on the initial quota. Some 11 stations were closed. Details on the operation of the quota policy will be found in DBS publications, *The Wheat Review* (monthly) and the *Coarse Grains Quarterly*.

### Estimated Area, Yield and Production of Principal Field Crops, 1954 and 1955

Crop	Area		Yield per Acre		Production	
	1954	1955	1954	1955 <sup>1</sup>	1954	1955 <sup>1</sup>
	acres	acres	bu.	bu.	bu.	bu.
All wheat.....	24,266,800	21,504,400	12.7	23.0	308,909,000	494,090,000
<i>Winter wheat.....</i>	<i>710,000</i>	<i>582,000</i>	<i>34.0</i>	<i>34.3</i>	<i>24,140,000</i>	<i>19,963,000</i>
<i>Spring wheat<sup>1</sup>.....</i>	<i>23,556,800</i>	<i>20,922,400</i>	<i>12.1</i>	<i>22.7</i>	<i>284,769,000</i>	<i>474,127,000</i>
Oats for grain.....	10,160,600	11,178,000	30.2	36.1	306,793,000	403,835,000
Barley.....	7,855,900	9,912,300	22.3	25.4	175,509,000	251,781,000
All rye.....	850,500	778,000	16.7	18.9	14,176,000	14,711,000
<i>Fall rye.....</i>	<i>672,500</i>	<i>566,700</i>	<i>17.7</i>	<i>19.9</i>	<i>11,922,000</i>	<i>11,301,000</i>
<i>Spring rye.....</i>	<i>178,000</i>	<i>211,300</i>	<i>12.7</i>	<i>16.1</i>	<i>2,254,000</i>	<i>3,410,000</i>
Flaxseed.....	1,206,000	1,988,400	9.3	10.8	11,238,000	21,498,000
Mixed grains.....	1,632,600	1,705,200	37.6	38.2	61,454,000	65,154,000
Corn for grain.....	418,000	507,000	53.4	62.1	22,339,000	31,510,000
Buckwheat.....	130,500	127,400	17.7	17.6	2,316,000	2,243,000
Peas, dry.....	50,000	45,200	17.6	15.2	880,000	686,000
Beans, dry.....	72,500	81,000	14.2	15.9	1,027,700	1,286,000
Soybeans.....	254,000	214,000	19.5	26.4	4,953,000	5,650,000
Potatoes.....	299,700	308,300	172.8	206.2	51,783,000	63,578,000
Mustard seed.....	66,800	78,500	415	673	27,733,000	52,840,000
Rapeseed.....	40,000	136,200	722	410	28,900,000	55,780,000
Sunflower seed.....	20,000	18,000	700	800	14,000,000	14,400,000
Tame hay.....	10,802,000	11,055,000	1.81	1.81	19,549,000	20,018,000
Fodder corn.....	355,500	366,400	8.38	8.85	2,978,100	3,243,400
Field roots.....	42,800	42,400	10.28	10.16	440,000	431,000
Sugar beets.....	90,453	81,928	11.10	11.39	1,003,869	933,000

<sup>1</sup> Includes relatively small quantities of winter wheat in all provinces except Ontario.



*Individual inspection of the seed plant of a large Ontario canning organization. The seed program begins when a company agronomist selects special varieties for use by contract growers.*

**Marketing of Wheat.**—The commercial grain-storage position remained unusually tight during 1954-55. Reflecting the limited space available in country elevators, deliveries of wheat by western Canadian farmers in 1954-55 amounted to 319,800,000 bu. as against 397,000,000 bu. in the preceding year and the ten-year (1943-44—1952-53) average of 347,200,000 bu.

Exports of wheat and flour in terms of wheat during 1954-55 amounted to 251,900,000 bu., about 1 p.c. below the 255,100,000 bu. shipped in 1953-54 but well above the pre-war (1935-36—1939-40) average of 182,500,000 bu. The 1954-55 total exports consisted of 211,300,000 bu. of wheat as grain and the equivalent of 40,600,000 bu. of wheat flour. Total domestic (commercial and farm) disappearance of wheat increased from 140,800,000 bu. in 1953-54 to a level of 159,100,000 in 1954-55. This total was slightly below the 1943-44—1947-48 average of 163,600,000 bu. and surpassed by a wide margin the pre-war (1935-36—1939-40) average of 114,400,000 bu. The upward movement in domestic use is largely attributable to the substantial increase in the amount of wheat fed to livestock.

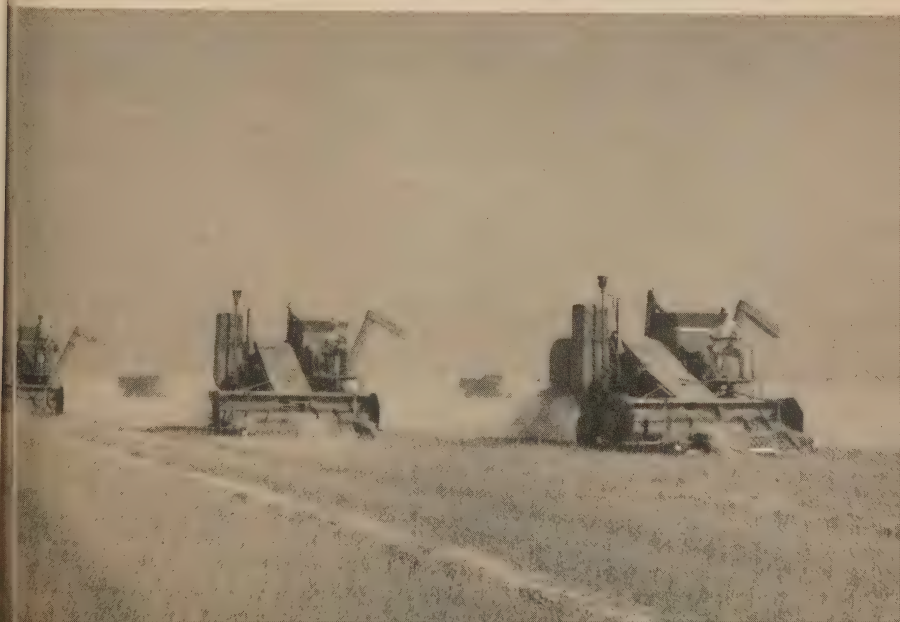
The 1954-55 crop year coincided with the second year of the current three-year International Wheat Agreement. Under its provisions Canada had an export quota of 152,300,000 bu. for 1954-55 and sales under the Agreement totalled 109,200,000 bu. All but 16 of the 44 importing countries included in the pact purchased wheat and/or flour from Canada. The Federal Republic of Germany purchased 21,400,000 bu., Japan 15,800,000 bu., Belgium 15,000,000 bu., and the Netherlands 10,800,000 bu. The greater part of Canada's wheat trade during 1954-55 was carried on in Class II wheat, i.e., wheat exported outside the provisions of the International Wheat Agreement. The leading market for Class II wheat was the United Kingdom, with that country accounting for some 89,200,000 bu. of wheat as grain and the equivalent of an additional 12,600,000 bu. in the form of wheat flour. The combined Canadian exports of 251,900,000 bu. of wheat and flour went to 86 countries, territories and colonies during the crop year.

During 1954-55 domestic sales of wheat, with the exception of durum, were made at the same prices as for wheat sold under the International Wheat Agreement. An additional 10 cents per bu. over the IWA price was charged on durum. Class II prices for all grades of wheat except durum coincided with the IWA and domestic quotations. All through the season Class II durum sold at a substantial margin over durum sold under IWA or for domestic use. No. 1 Northern (basis Fort William-Port Arthur) for IWA Class II and domestic sales averaged \$1.69 $\frac{7}{8}$  per bu. during August 1954 but averaged \$1.76 during July 1955, the last month of the crop year. On Jan. 3, 1956, the comparable quotation for No. 1 Northern was \$1.71 $\frac{7}{8}$ .

The marketing of western Canadian wheat during the 1954-55 crop year was again conducted by the Canadian Wheat Board on a one-year pool basis with the initial payment set at \$1.40 per bu. basis No. 1 Northern in store Fort William-Port Arthur or Vancouver. The initial payment for No. 1 C.W. amber durum was again established at \$1.50 per bu. No adjustment or final payments had been announced at the time of writing (Jan. 4, 1956) on the 1954-55 pool. However, on Nov. 6, 1954, an interim payment of 10 cents per bu. on 1953-54 deliveries of wheat was announced. This payment covered all 1953-54 deliveries with the exception of certain special varieties that had not yet been sold in sufficient quantity to justify an interim payment. The final payment on the 1953-54 pool was announced on May 16, 1955, and averaged 6.384 cents per bu. on farmers' deliveries of 398,000,000 bu. Prior to the deduction of the Prairie Farm Assistance levy the net price realized by producers in the 1953-54 pool for No. 1 Northern wheat, basis in store Fort William-Port Arthur or Vancouver, was \$1.56426 per bu. The corresponding realized price for the 1952-53 pool was \$1.81871 per bu.

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*The marketing in interprovincial and export trade of wheat, oats and barley produced in Western Canada is the exclusive responsibility of the Canadian Wheat Board. The Board has been operating for twenty years and many western producers, particularly of the younger generation, have never marketed their grain in any other way.*







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Pricing arrangements for the 1955-56 crop year are little changed from those in effect for 1954-55. The initial payment to producers for No. 1 Northern is again \$1.40 per bu. with No. 1 C.W. amber durum at \$1.50 per bu. However, effective Sept. 7, 1955, the 10-cent-per-bu. premium charged on durums sold domestically was dropped. Class II durums continue to hold a substantial margin over domestic and IWA quotations for this variety. Apart from durums, current quotations for IWA domestic and Class II sales coincide.

The Canadian export quota under the third year (1955-56) of the current International Wheat Agreement is 153,100,000 bu. The maximum and minimum prices \$2.05 and \$1.55 per bu., respectively (in U.S. funds), remain unchanged from 1954-55.

### Production, Imports and Exports of Wheat, Years Ended July 31, 1947-56

NOTE.—Wheat flour has been converted into bushels of wheat at the uniform average rate of  $4\frac{1}{2}$  bu. to the barrel of 196 lb. of flour.

Year ended July 31—	Production (Previous Year's Crop)	Imports of Wheat and Flour	Exports of Wheat and Flour	Domestic Dis- appearance
	'000 bu.	'000 bu.	'000 bu.	'000 bu.
1947.....	411,601	16	239,421	159,65
1948.....	338,506	825	194,982	152,77
1949.....	381,413	289	232,329	124,67
1950.....	366,028	4	225,137	131,10
1951.....	466,490	12	240,961	148,53
1952.....	553,646	18	355,825	169,86
1953.....	701,922	17	385,527	150,40
1954.....	613,962	457	255,081	140,84
1955.....	308,909	178	251,909	159,10
1956.....	494,090	—	—	—

**Marketing of Other Grains.**—Aside from wheat, the largest volumes of grain marketed are oats and barley. In Western Canada, these two grains are currently marketed through compulsory crop-year pools administered by the Canadian Wheat Board. As in the case of wheat, producers receive

fixed initial payment on a grade basis for oats and barley at the time of delivery and additional payments depending on the prices ultimately realized by the Board on its sales of the various grades. Other grains, of which the most important are rye and flaxseed, are sold on the open market in Western Canada.

In Eastern Canada where grains are not as extensively grown for sale as in the Prairie Provinces, facilities for grain marketing are less highly organized. Nevertheless, there are important cash markets, particularly in southwestern Ontario, for such crops as winter wheat, malting barley, soybeans, dry beans and shelled corn. Producer organizations exist for many of these and other cash crops and most of them take an active interest in storage and marketing arrangements.

From the standpoint of importance in terms of volume, however, marketing of western Canadian oats and barley is second only to that of wheat. Initial payments for both oats and barley in 1954-55 were the same as in 1953-54, i.e., on the basis of 65 cents per bu. for No. 2 C.W. oats and 96 cents per bu. for No. 3 C.W. Six-Row barley, in store Fort William-Port Arthur. The basic initial payments for oats and barley in 1955-56 are again unchanged.

Effective Mar. 21, 1955, and retroactive to Aug. 1, 1954, the initial payments on oats were increased by 7 cents per bu. for deliveries into the 1954-55 pool. Effective Mar. 14, 1955, and retroactive to Aug. 1, 1954, initial payments on barley were increased by 10 cents per bu. for deliveries into the 1954-55 pool.

Final payments on the 112,428,326 bu. of barley delivered to the 1954-55 pool averaged 5.814 cents per bu. after deduction of payment expenses and the

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*Haying on an eastern Canadian farm is a family and neighbourhood affair.*



1-p.c. Prairie Farm Assistance levy. Total prices (basis in store Fort William-Port Arthur) realized by producers for representative grades, after deducting carrying charges in country and terminal elevators, Board administrative costs, etc., but before deducting the 1-p.c. PFAA levy, were \$1.10501 per bu. for No. 3 C.W. Six-Row barley and \$1.00653 per bu. for No. 1 Feed barley. Final payments on the 69,581,184 bu. delivered to the 1954-55 pool averaged 5.432 cents per bu. Total prices realized by producers for representative grades, on the same basis as for barley, were \$0.80742 per bu. for No. 2 C.W. and \$0.71351 per bu. for No. 1 Feed oats.

Some 13,200,000 bu. of rye and 8,800,000 bu. of flaxseed were delivered by farmers in Western Canada in 1954-55, both these grains being sold on the open market.

## Livestock

The number of cattle on farms at June 1, 1955, was estimated at 10,239,000 head, about 3 p.c. more than at the same date of 1954. Milk cows increased about 2.5 p.c. Hogs on farms continued to advance in numbers; in 1955 there were 18 p.c. more than in 1954 and 24 p.c. more than in 1953. There was no significant change in the number of sheep and lambs on farms from June 1, 1954 to June 1, 1955, but horses continued to diminish, numbering 901,400 on the latter date, about 92,000 fewer than a year previously.

### *Livestock on Farms, by Province, as at June 1, 1955*

Province	Milk Cows	Other Cattle	Hogs	Sheep and Lambs	Horses
	No.	No.	No.	No.	No.
Prince Edward Island	47,300	77,700	61,000	39,700	16,000
Nova Scotia.....	90,000	115,000	36,000	97,000	19,400
New Brunswick.....	98,000	104,000	72,000	66,000	23,000
Quebec.....	1,121,000	937,000	1,272,000	346,000	195,000
Ontario.....	1,058,000	2,008,000	1,840,000	413,000	155,000
Manitoba.....	201,000	473,000	408,000	57,000	82,000
Saskatchewan.....	280,000	1,170,000	715,000	159,000	206,000
Alberta.....	315,000	1,770,000	1,620,000	460,000	176,000
British Columbia....	102,000	272,000	55,000	85,000	29,000
<b>Totals, 1955....</b>	<b>3,312,300</b>	<b>6,926,700</b>	<b>6,079,000</b>	<b>1,722,700</b>	<b>901,400</b>
<b>1954....</b>	<b>3,233,000</b>	<b>6,721,000</b>	<b>5,141,000</b>	<b>1,716,400</b>	<b>993,300</b>

The movement of cattle off Canadian farms into public stockyards and packing plants rose 13.6 p.c. above the 1953 total, calf marketings increased 10 p.c., sales of sheep and lambs rose 4 p.c. and hog deliveries were up 1.6 p.c. compared with 1953. Cattle prices, although unusually steady all year, averaged somewhat lower than in 1953. Steers up to 1,000 lb. good, averaged \$17.25 per cwt. (\$20.25 in 1953); common, \$14.67 (\$15.53). On the other hand, despite increased sales, hog prices during 1954 averaged 50 cents per cwt. above the 1953 average.

Meat animals were in good supply and consumer buying continued at a high level, so that per capita consumption of beef was again up. Beef disappearance reached 72.0 lb. per person in 1954 compared with 64.5 lb. in 1953 and 44.7 lb. in 1952, but per capita pork consumption continued its decline from 65.9 lb. in 1952 and 55.0 lb. in 1953 to 53.7 lb. in 1954.



## Commercial Marketings of Livestock, by Province, 1954

Province	Cattle	Calves	Hogs	Sheep and Lambs
	No.	No.	No.	No.
Prince Edward Island.....	12,407	2,466	82,413	14,532
Nova Scotia.....	5,872	3,751	20,951	9,466
New Brunswick.....	8,750	21,651	40,768	17,443
Quebec.....	96,990	292,392	898,581	148,920
Ontario.....	659,001	266,672	1,790,032	174,265
Manitoba.....	192,924	87,814	336,015	33,689
Saskatchewan.....	416,252	104,077	421,601	45,343
Alberta.....	561,647	132,496	1,476,249	122,225
British Columbia.....	54,258	10,966	32,291	26,534
<b>Totals, 1954.....</b>	<b>2,008,101</b>	<b>922,285</b>	<b>5,098,901</b>	<b>592,417</b>
<b>1953.....</b>	<b>1,767,599</b>	<b>837,722</b>	<b>5,018,081</b>	<b>570,289</b>

## Estimated Meat Production and Consumption, 1953 and 1954

Item		1953	1954	1953	1954
		Beef		Veal	
Animals slaughtered.....	No.	1,983,800	2,266,100	1,172,000	1,464,600
Animals exported.....	"	67,300	85,971	2,205	3,223
Meat production <sup>1</sup> .....	'000 lb.	983,807	1,100,060	124,469	153,774
Total domestic disappearance.....	"	953,978	1,094,459	121,386	153,974
Per capita disappearance.....	lb.	64.5	72.0	8.2	10.1
		Pork		Mutton and Lamb	
Animals slaughtered.....	No.	6,892,100	7,081,800	679,300	708,400
Animals exported.....	"	21,124	26,508	2,347	2,402
Meat production <sup>1</sup> .....	'000 lb.	885,424	917,106	29,136	30,155
Total domestic disappearance.....	"	812,711	815,687	34,468	37,547
Per capita disappearance.....	lb.	55.0	53.7	2.3	2.5
		Offal		Canned Meat	
Production.....	'000 lb.	81,393	89,372	56,249	57,450
Total domestic disappearance.....	"	75,325	80,316	84,061	44,144
Per capita disappearance.....	lb.	5.1	5.3	5.7	2.9

<sup>1</sup> Production from animals slaughtered in Canada, basis cold dressed carcass weight excluding offal and, in the case of pork, fats and offal.

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## Dairying

**Milk.**—Canada's milk production reached a total of 16,883,621,000 lb. in 1954, 3 p.c. higher than for 1953. Reports from dairy factories show that the production of dairy products during the first ten months of 1955 amounted to the equivalent of 8,784,565,000 lb. of milk, which represents 59 p.c. of the total milk production of approximately 15,000,000,000 lb. for the period. The 1955 production is tentatively estimated at 17,000,000,000 lb., the highest output on record.

**Butter.**—The total quantity of butter manufactured in 1954 amounted to 334,343,000 lb., the highest annual output since 1949. Creamery butter, of course, comprises the greater part of the butter supply. Production of dairy butter in recent years has fallen to quite low levels amounting to only 6 p.c. of the total output in 1954. During the ten months January-October 1955, creamery butter production reached a total of 285,198,000 lb., whey butter, 1,476,000 lb., and dairy butter 16,000,000 lb., making a total butter output for the period of 302,674,000 lb., compared with a combined total of 301,043,000 lb. for the same period in 1954. The domestic disappearance of butter in 1954 averaged 20·69 lb. per capita compared with 20·88 lb. per capita in 1953 and 26·69 lb. in 1948.

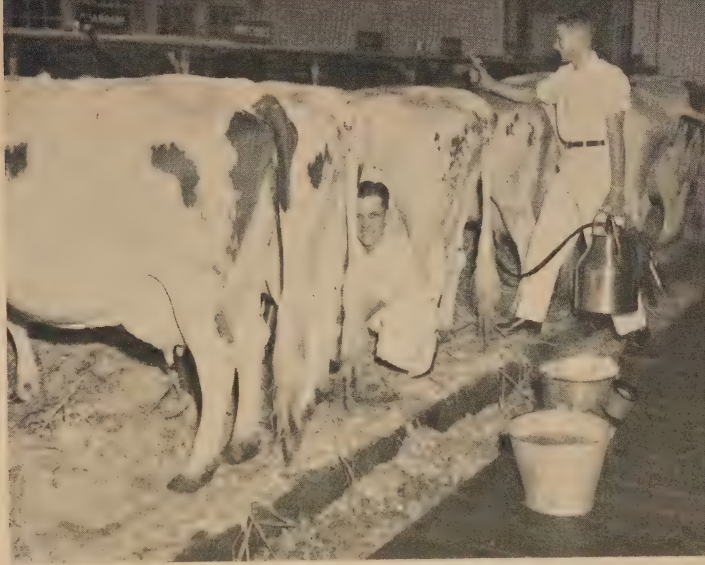
The increase in population is affecting total butter consumption—in the first ten months of 1955, it amounted to 264,523,000 lb., compared with 258,450,000 lb. in the same months of 1954—but the per capita consumption was up only from 17·01 lb. to 17·13 lb. in the same comparison. Since 1949, the manufacture of margarine has been a competitive factor in the domestic consumption of butter.

**Cheddar Cheese.**—At the present time, the greater part of the cheddar cheese produced in Canada is consumed domestically. In 1954, production increased approximately 10 p.c. over 1953 to 84,436,000 lb. but in the January-October period of 1955 production amounted to 71,600,000 lb. as against 77,525,000 lb. in the first ten months of 1954. However, the total quantity of



Technicians of provincial health laboratories guard against the sale of impure milk.

ore milk was pro-  
duced in Canada in  
1955 than ever be-  
fore. About 30 p.c.  
of the production is  
used in fluid form,  
the daily consumption  
per person averaging  
just under one pint.



cheddar cheese disposed of in Canada during 1954 amounted to 70,310,000 lb., compared with 68,251,000 lb. in 1953, representing a per capita consumption of 4.63 lb. and 4.62 lb., respectively. Of this amount, 37,798,000 lb. was used as cheddar and 32,512,000 lb. in processed cheese. These amounts, together with 12,913,000 lb. of cheese other than cheddar, amounted to a total domestic disappearance of 83,223,000 lb. in 1954, approximately 3,100,000 lb. more than in the previous year. Per capita disappearance of all types of cheese was 6.26 lb. in 1954, as compared with 6.21 lb. in 1953.

### Dairy Production, by Economic Area, 1952-54

Economic Area and Year	Total Milk Production	Milk Used in Fluid Sales	Products Manufactured <sup>1</sup>			
			Butter		Cheddar Cheese	Ice Cream
			Creamery	Dairy		
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 gal.
Maritimes.....1952	1,026,830	325,307	16,808	3,889	1,400	2,541
1953	1,102,072	338,914	19,798	3,756	1,336	2,436
1954	1,139,192	350,395	21,035	3,213	1,713	2,425
Que. and Ont..1952	10,442,330	3,415,808	181,261	7,076	62,462	15,884
1953	10,894,042	3,564,104	194,836	5,811	70,568	17,262
1954	11,241,708	3,640,517	202,612	5,221	77,981	17,222
Prairies.....1952	3,607,834	666,593	79,007	12,062	3,490	5,873
1953	3,727,503	704,427	82,783	10,927	4,181	6,053
1954	3,733,502	738,538	82,140	10,338	3,955	5,938
B.C.....1952	657,609	348,694	3,670	742	466	2,964
1953	725,062	359,710	5,366	675	659	3,058
1954	769,219	370,842	7,067	736	787	3,057
Totals.....1952	15,734,603	4,756,402	280,746	23,769	67,818	27,262
1953	16,448,679	4,967,155	302,783	21,169	76,744	28,809
1954	16,883,621	5,100,292	312,854	19,508	84,436	28,642

<sup>1</sup> Not included in this table are: whey butter with a production of 1,981,000 lb. in 1954 and 1,738,000 lb. in 1953, other cheese with 7,229,000 lb. and 6,475,000 lb., respectively, and concentrated milk products with 450,189,000 lb. and 439,786,000 lb., respectively.



**Concentrated Milk and Ice Cream.**—In 1954 the production of concentrated milk products amounted to 450,189,000 lb., up 2 p.c. from 1953. A further increase in production occurred during the January-October period of 1955. Evaporated milk, the most important product, increased 5 p.c. over that produced in the ten-month period of 1954, and whole-milk powder advanced 16 p.c. Skim-milk powder, which amounted to approximately 75,000,000 lb. in the 1954 period, advanced approximately 1,000,000 lb. during this period of 1955. Ice cream production, which fell slightly in 1954, made a 16-p.c. advance in January-October 1955 as compared with the same period of 1954.

**Income.**—Farm income from dairying in 1954 amounted to \$462,486,000, of which \$426,088,000 was cash income and \$36,398,000 income in kind. Prices of all products declined in 1954 as compared with 1953, but advanced slightly in 1955.

## Poultry

The estimated number of poultry on farms in Canada (exclusive of Newfoundland) at June 1, 1955, was 66,214,000 birds. This was a decrease of 8 p.c. from June 1, 1954. There were 8 p.c. fewer hens and chickens and 3 p.c. fewer turkeys.

Egg production in 1954 was estimated at 392,406,000 doz., an increase of 11 p.c. over the 353,199,000 doz. produced in 1953. The per capita consumption of eggs in 1954 was 24.4 doz., an increase of 1.6 doz. compared to the previous year. Poultry meat production, estimated at 421,456,000 lb. in 1954, was 9 p.c. greater than in 1953 and per capita consumption of poultry meat rose from 26.4 lb. to 28.7 lb. The total farm value of eggs and poultry meat produced in 1954 was \$311,092,000.

### Poultry on Farms, by Province, June 1, 1953-55

(Exclusive of Newfoundland)

Province and Year	Hens over Six Months Old	Total Hens and Chickens	Turkeys	Geese	Ducks
	'000	'000	'000	'000	'000
Maritime Provinces..... 1953	1,575	3,490	92	30	23
..... 1954	1,635	3,970	100	30	23
..... 1955	1,750	3,803	89	32	24
Quebec..... 1953	3,300	9,800	375	14	53
..... 1954	3,650	10,859	460	15	56
..... 1955	3,476	9,282	420	14	57
Ontario..... 1953	7,200	23,400	568	147	168
..... 1954	7,300	24,000	655	135	150
..... 1955	7,055	20,860	700	120	180
Prairie Provinces..... 1953	7,340	22,370	1,355	182	217
..... 1954	7,150	24,650	1,830	172	237
..... 1955	7,570	24,200	1,740	177	254
British Columbia..... 1953	1,280	3,900	225	15	27
..... 1954	1,500	4,130	320	14	24
..... 1955	1,550	3,900	328	14	20
<b>Totals..... 1953</b>	<b>20,695</b>	<b>62,960</b>	<b>2,615</b>	<b>388</b>	<b>488</b>
<b>..... 1954</b>	<b>21,235</b>	<b>67,609</b>	<b>3,365</b>	<b>366</b>	<b>490</b>
<b>..... 1955</b>	<b>21,401</b>	<b>62,045</b>	<b>3,277</b>	<b>357</b>	<b>535</b>



*Light Sussex chickens on a Nova Scotia poultry farm are fed from a truck. There are about 25,000 birds on this range.*

### *Quantity and Value of Eggs and Poultry Meat Produced, by Province, 1954*

Province	Eggs		Poultry Meat	
	Production	Value	Production	Value
	'000 doz.	\$'000	'000 lb.	\$'000
Maritime Provinces.....	33,500	13,764	24,798	11,494
Quebec.....	63,808	26,321	69,614	29,805
Ontario.....	156,385	60,090	158,630	63,487
Prairie Provinces.....	107,834	35,000	131,861	42,231
British Columbia.....	30,879	12,899	36,553	16,001
<b>Totals, 1954.....</b>	<b>392,406</b>	<b>148,074</b>	<b>421,456</b>	<b>163,018</b>
<b>1953.....</b>	<b>353,199</b>	<b>164,528</b>	<b>385,064</b>	<b>160,477</b>

### *Special Crops*

**Fruit.**—Fruit is grown on a commercial scale in Nova Scotia, New Brunswick, Quebec, Ontario and British Columbia. The main producing areas are in Ontario and British Columbia, these provinces accounting for 43 p.c. and 31 p.c., respectively, of the value of all fruit produced in 1954. In most of the producing areas, particularly the Annapolis Valley of Nova Scotia, the Niagara Peninsula of Ontario and the Okanagan Valley of British Columbia, fruit-growing is a specialized crop and the prosperity of the area is dependent to a large extent upon the fruit output.

## Values of Fruits Produced, 1951-54, with Averages 1946-50

Fruit	Average 1946-50	1951	1952	1953	1954
	\$'000	\$'000	\$'000	\$'000	\$'000
Apples.....	16,139	13,893	17,391	17,578	17,963
Pears.....	1,895	2,238	2,371	2,653	2,716
Plums and prunes.....	1,245	865	1,033	1,252	1,539
Peaches.....	3,987	4,004	5,152	5,543	5,252
Apricots.....	344	116	342	425	319
Cherries.....	2,374	2,263	2,113	2,658	3,232
Strawberries.....	5,724	5,662	6,077	6,405	6,904
Raspberries.....	3,185	3,133	2,565	3,661	3,236
Grapes.....	2,969	2,813	3,052	3,496	3,896
Loganberries.....	200	147	158	197	207
Blueberries.....	—	—	3,384	3,339	3,409
<b>Totals.....</b>	<b>38,062</b>	<b>35,134</b>	<b>43,638</b>	<b>47,207</b>	<b>48,673</b>

The apple is the most important of the commercial fruits grown in Canada. In 1954, a normal production year, 14,600,000 bu. with a farm value of \$17,963,000 were produced; 44.8 p.c. of them were British Columbia apples, 21.5 p.c. were grown in Ontario, 17.2 p.c. in Quebec, 14.8 p.c. in Nova Scotia and 1.7 p.c. in New Brunswick. The average price received by the growers in these areas for unpacked fruit differed considerably. It ranged from 91 cents per bu. in British Columbia to \$1.75 per bu. in New Brunswick. The 1955 apple crop was exceptionally high and of good quality in all producing areas. It is estimated at 19,500,000 bu., 34 p.c. higher than in 1954 and the largest crop on record. Most of the increase occurred in Eastern Canada, over two-thirds of it being in Nova Scotia and Quebec. As a result, apples from these two provinces have been more widely distributed than in other years. There has been a change toward more orderly marketing of apples in recent years. Cold-storage facilities have increased and the marketing season has been extended over almost the whole year. Of the total supply at the end of the 1954-55 season, including some imports, about 34 p.c. was processed, 14 p.c. exported and the balance marketed domestically in fresh state.

Strawberries and raspberries are also grown in commercial quantities in the five fruit-producing provinces but production of pears, peaches, cherries, plums and prunes is very largely confined to British Columbia and Ontario. Ontario produces a large proportion of all the grapes grown in Canada and British Columbia is the only province in which apricots and loganberries are grown commercially. Production of all tender tree fruits and loganberries was higher in 1955 than in 1954 but 1955 strawberry, raspberry and grape crops were lower. November 1955 estimates of production, with final figures for 1954 in parentheses, were: pears 1,458,000 bu. (1,261,000); plums and prunes 780,000 bu. (716,000); peaches 2,935,000 bu. (2,425,000); apricots 218,000 bu. (118,000); cherries 544,000 bu. (500,000); strawberries 22,659,000 qt. (27,971,000); raspberries 10,957,000 qt. (12,839,000); loganberries 1,530,000 lb. (1,056,000); and grapes 86,470,000 lb. (92,774,000).

Canning and processing industries have developed in the fruit-growing districts and although the importance of the processing market varies with the different fruits it provides a valuable outlet for substantial proportions of most Canadian-grown fruit crops. Some canned fruits are exported.



**Tobacco.**—Most of the tobacco produced in Canada is grown in southern Ontario and a great part of it is flue-cured tobacco. Quebec and British Columbia are the only other producing provinces, Quebec growing all the cigar tobacco crop and Quebec and Ontario both producing some pipe tobacco. The estimated production of all types of tobacco in 1955 amounted to 122,200,000 lb., re-dried weight, a reduction of 44,300,000 lb. from the record 1954 crop. An agreed 30-p.c. reduction of acreage planted in Ontario together with weather and disease damage to the crop reduced the yield per acre of Ontario flue-cured tobacco from 1,436 lb. in 1954 to 1,278 lb. in 1955. Estimated tobacco acreages planted in 1955, with 1954 data in parentheses, were: Ontario, 95,800 acres (120,804); Quebec, 11,300 acres (10,863); British Columbia, 90 acres (72).

**Honey.**—Honey is produced commercially in all provinces except Newfoundland, Ontario having the largest output. Farm cash income from the sale of honey decreased each year from \$6,445,000 in 1951 to \$3,548,000 in 1954 and while estimates place the 1955 crop at 24,600,000 lb. which is 24 p.c. higher than in 1954, the production for the latest year is still below the 1944-53 average of 33,300,000 lb. Higher average yields accounted for the 1955 production increase. Weather conditions were generally favourable in the Prairie Provinces and yields there were considerably above both the 1954 and the ten-year average. The number of bee colonies in Canada, estimated at 321,500, was down slightly from 1954.

**Sugar Beets.**—Sugar beets are grown commercially in Quebec, Ontario, Manitoba and Alberta and sugar-beet processing plants are located in each of these provinces. In 1955, 933,000 tons of sugar-beets were produced from 81,928 acres compared with 1,003,869 tons in 1954 from 90,453 acres. Harvested acreages in 1955, with figures for 1954 in parentheses, were: Quebec, 5,800 (6,473); Ontario, 18,900 (23,504); Manitoba, 20,740 (23,510); and Alberta, 36,488 (36,966).

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Behind all industrial production is electric power. The two great basic industries of British Columbia—forest products and metallurgy—are large power users and their expansion during the past ten years has required a three-fold increase in turbine installation in that Province.

# Water Power

THE potential power available from the falls and rapids on the numerous rivers, large and small, which are well distributed throughout Canada, constitutes one of the country's great natural resources. Canada's wide domain, favourable topography, ample and well-distributed precipitation, and innumerable lakes and rivers, all combine to provide a wealth of water-power capable of furnishing a dependable flow of low-cost hydro-electric energy to the majority of centres of population and for the development of the industries of forest and mine in more remote areas.

Low-cost hydro-electric energy is fundamental to the industrial activities of Canada and is the basis upon which its essential industries have been built. The pulp and paper industry ranks highest in the use of hydraulic and hydro-electric power, its over-all consumption representing about 20 p.c. of the Canadian output of this class of power. Mining and its attendant metallurgical industries are also large users of hydro-electricity, particularly in the final processes in the production of metals such as aluminum, of which Canada is a very large producer. The electro-chemical industries and light manufacturing, such as food-processing and textile production, are also important power consumers. Furthermore, the wide distribution of electric energy, principally derived from water power, has contributed to the high standard of living in Canada by providing economical domestic service to cities, towns, villages and farms.

The table below lists by provinces, and under two conditions of flow, the total power potential of all presently tabulated water-power sites in Canada; also the total installed capacity of all existing water-power developments as of Jan. 1, 1956.

*Available and Developed Water Power, by Province, Jan. 1, 1956*

Province or Territory	Available 24-Hour Power at 80 p.c. Efficiency		Turbine Installation
	At Ordinary Minimum Flow	At Ordinary Six-Month Flow	
	h.p.	h.p.	h.p.
Newfoundland.....	958,500	2,754,000	325,150
Prince Edward Island.....	500	3,000	1,882
Nova Scotia.....	25,500	156,000	176,908
New Brunswick.....	123,000	334,000	164,130
Quebec.....	10,896,000	20,445,000	8,031,422
Ontario.....	5,407,000	7,261,000	5,371,136
Manitoba.....	3,333,000	5,562,000	796,900
Saskatchewan.....	550,000	1,120,000	109,835
Alberta.....	508,000	1,258,000	285,110
British Columbia.....	7,023,000	10,998,000	2,439,508
Yukon and Northwest Territories.....	382,500	814,000	33,240
<b>Canada.....</b>	<b>29,207,000</b>	<b>50,705,000</b>	<b>17,735,221</b>



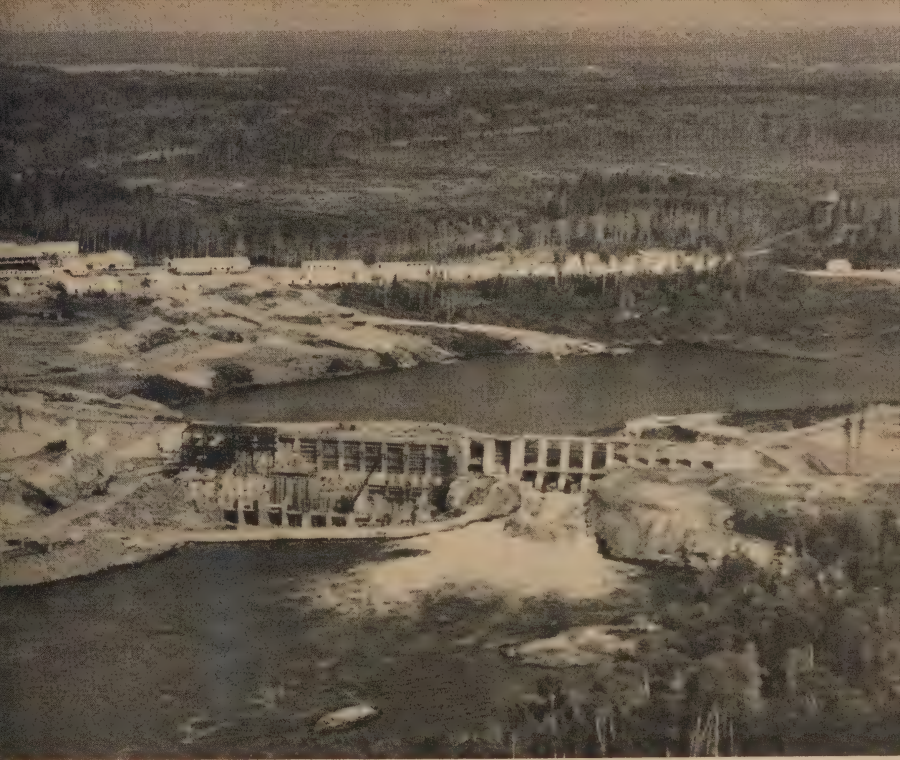
*Engineering genius and the skill of men of many nations is transforming Manitou Falls, an isolated cascade on the English River, into another source of power for the mines, the mills and the homes of northwestern Ontario. Outflow of power from this plant, scheduled for initial service early in 1956, will be radio-controlled from Ear Falls generating station, 17 miles upstream.*



Total resources under the condition of "Ordinary Six-Month Flow" are listed at nearly 51,000,000 h.p. However, as it is usual practice to install excess capacity at developed sites, it may be said that presently recorded water-power resources of Canada will permit an economic turbine installation of nearly 66,000,000 h.p. Also, the present total turbine installation of 17,735,221 h.p. represents the development of only about 27 p.c. of recorded resources.

Canada's installed hydro-electric capacity of nearly 18,000,000 h.p. is higher than that of any other country with the exception of the United States which is roughly double that amount. On a per capita basis, Norway comes first with 1.3 h.p. and Canada second with 1.1 h.p. It is interesting to note, however, that the per capita installations of British Columbia and Quebec are, respectively, 1.9 h.p. and 1.8 h.p.

Extensive use of Canada's water-power resources is being made at present and many of the more attractive sites within economic transmission distance of present centres of population have already been developed, but the remaining reserves of not-too-distant power are sufficient in most instances to meet the prospective needs of the more closely settled areas for some years at the very least; also, improvements in the technique of long-distance transmission, including the use of higher voltage, are bringing additional sites within the orbit of existing systems. In more remote districts water power will facilitate the utilization of mineral and other resources and promote the establishment of new communities; from the viewpoint of moving Canada's



frontiers northward, the availability of considerable amounts of potential power in the more northern and at present rather inaccessible regions of the country is definitely advantageous.

### ***Provincial Distribution of Water-Power Resources***

On the Island of Newfoundland, and in Nova Scotia and New Brunswick, while the rivers are short, topography and run-off conditions are favourable to power development and numerous sites at which moderate sized developments may be made are located within economic transmission distance of the principal cities and towns. These sites constitute a valuable source of power, a considerable proportion of which has been developed. In Labrador, the Hamilton River system has a high power potential which is at present under investigation.

Quebec is richest among the provinces in water-power resources, containing more than 40 p.c. of the total recorded for Canada; it also ranks highest in developed power, its present installation of 8,031,422 h.p. being more than 45 p.c. of the total for all provinces. Two of the larger hydro-electric plants in the world are located in this Province—the Quebec Hydro-Electric Commission's Beauharnois development on the St. Lawrence River has a present capacity of 1,408,000 h.p. and the Shipshaw plant of the Aluminum Company of Canada on the Saguenay River is rated at 1,200,000 h.p. The Shawinigan Water and Power Company has a capacity of 1,695,000 h.p. in seven plants on the St. Maurice River.



Ontario has large power resources and ranks second in power production among the provinces. The Hydro-Electric Power Commission of Ontario is the greatest power-producing and distributing organization in Canada; it operates 60 hydraulic generating stations with a total capacity of approximately 4,500,000 h.p., the largest development being on the Niagara River at Queenston where the 1955 capacity of the Sir Adam Beck-Niagara Generating Stations Nos. 1 and 2 is 1,820,000 h.p. In addition the Commission purchases nearly 1,000,000 h.p. on contract.

Of the Prairie Provinces, Manitoba has the largest water-power resources, there being great potential power on the Saskatchewan, Nelson and Churchill Rivers. The larger of the present developments are located on the Winnipeg River and serve Winnipeg, adjacent municipalities, and the transmission network of the Manitoba Power Commission. The Commission is at present serving about 400 municipalities and is carrying out a vigorous program of rural electrification. In Saskatchewan, water-power developments are confined to mining uses in the northern areas, where water-power resources are abundant. The transmission network of the Saskatchewan Power Corporation of the Provincial Government, serving the more settled areas, is supplied exclusively by fuel-power plants. In Alberta, the larger hydro-electric developments, from which Calgary Power Limited serves a large part of the southern portion of the Province, are located on the Bow River and tributaries. For the most part, the Province's water-power resources are located in the northern areas and are rather remote from present centres of population.

British Columbia, traversed by three distinct mountain ranges and with, on the whole, a high rate of precipitation, has many mountainous rivers which



Potential power. The rugged topography of northern Ontario and Quebec with its innumerable lakes and natural storage of its fast-flowing rivers with their waterfalls offers many opportunities for the development of power.



offer opportunity for power development. The majority of developments are located in the southern part of the province, the British Columbia Electric Company Limited, the British Columbia Power Commission and the Consolidated Mining and Smelting Company being important power producers. The new 600,000-h.p. Kemano plant of the Aluminum Company of Canada is the largest in the Province.

In the Yukon and Northwest Territories, although there are appreciable amounts of potential power, the sites are so remotely located as to limit their development to local mining uses; also, owing to light precipitation and the long winter season, favourable sites are limited to those with large storage capacity.

## **Hydro-Electric Construction during 1955**

The development of the water-power resources of Canada proceeded at a high rate during 1955, with slightly more than 1,000,000 h.p. of new capacity being brought into operation.



**Ontario.**—The largest single increase in capacity during the year was that of 525,000 h.p. in the final five units of the Sir Adam Beck-Niagara Generating Station No. 2 on the Niagara River of The Hydro-Electric Power Commission of Ontario, bringing total capacity of combined Stations Nos. 1 and 2 to 1,820,000 h.p., the largest single installation in Canada. Directly associated with these stations, a pumped storage plant containing six reversible units each rated as a turbine at 45,500 h.p. is being constructed for operation

in 1956-57. At the international rapids site on the St. Lawrence River, good progress was made on the powerhouse foundations following successful de-watering in July; other phases of the project, including re-location of highways, railways and villages, also progressed. The contract for supply of 16 turbines, each of 75,000 h.p., was awarded and initial operation is scheduled for 1958. In the northwestern region, the Commission is constructing a plant of 74,000 h.p. at Manitou Falls on the English River, operation of which is scheduled for 1956.

The Ontario and Minnesota Power Company increased the capacity of its Rainy River plant by 650 h.p. by replacement of turbines.

**Quebec.**—The Shawinigan Water and Power Company completed the installation of one additional unit in each of its Rapid Blanc, La Trenché and La Tuque plants on the St. Maurice River, the units being, respectively, of 44,500 h.p., 65,000 h.p. and 49,000 h.p., for a total increase in capacity of

158,500 h.p. A new unit of 47,000 h.p. was installed by the Gatineau Power Company in its Pagan Falls plant on the Gatineau River, and one of 34,500 h.p. by the Northern Quebec Power Company in its Quinze Rapids plant on the upper Ottawa River.

The Quebec Hydro-Electric Commission completed the installation of the third unit of 16,000 h.p. in its Rapid II plant on the Ottawa River, bringing capacity to 48,000 h.p. Construction proceeded very actively on the Lac Casse, Bersimis River, project of 1,200,000 h.p. and initial operation is scheduled for late in 1956. Excavation of the 7-mile, 31-foot-diameter tunnel and of the underground powerhouse has been largely completed and good progress has been made on other phases of the development; full operation is anticipated in 1957-58. Investigations and plans are being made by the Commission for a second plant of about 600,000 h.p. at a site about 18 miles downstream.

**British Columbia and Yukon Territory.**—The Aluminum Company of Canada proceeded with the expansion of its Kemano powerhouse and it was anticipated that the fourth unit of 150,000 h.p. would come into operation late in 1955. Ultimate capacity is about 2,000,000 h.p., the remaining 1,400,000 h.p. to be installed as required.

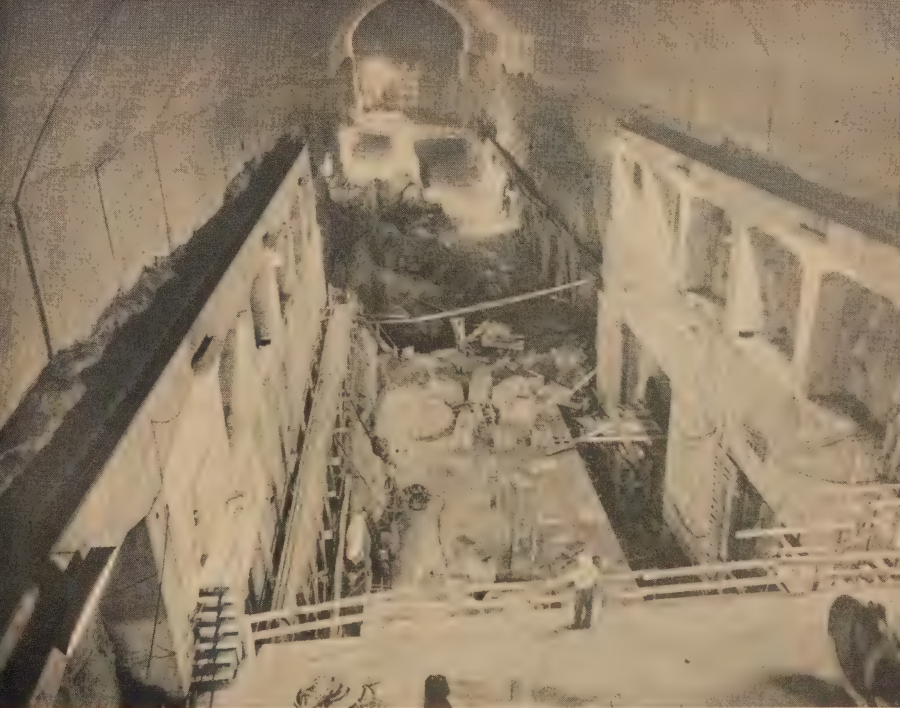
The British Columbia Power Commission completed the redevelopment of the Puntledge River site consisting of a single unit of 35,000 h.p.; also completed was the Spillimacheen River development of 5,500 h.p. Preliminary construction was undertaken on the development at Ladore Falls, Campbell River, of 70,000 h.p. in two units for 1956 operation, and of a later additional unit.

The British Columbia Electric Company proceeded with construction on its development of 58,500 h.p. on Seton Creek near Lillooet for operation in 1956; this plant will use water from the tailrace of the Bridge River powerhouse. Preliminary work was begun on the Cheakamus River development of 190,000 h.p. for 1957 operation. The Northern British Columbia Power Company completed the rebuilding of its Shawatlan plant at Woodworth Lake comprising a new unit of 2,140 h.p.

Northwest Power Industries Limited continued its surveys and investigations in northern British Columbia and southern Yukon Territory towards a major hydro-electric development involving initial storage and later diversion of the waters of the Yukon River through the Coast Range; the initial development would be of about 900,000 h.p., to be raised later to 3,000,000 h.p. and perhaps ultimately to 4,300,000 h.p. The Yukon Hydro Company completed the building of a new plant of 800 h.p. on McIntyre Creek near Whitehorse.

**Prairie Provinces.**—Calgary Power Limited built two new plants on the Kananaskis River, 6,900 h.p. at Upper Kananaskis Lake and 18,500 h.p. at Pocaterra Creek. Northland Utilities installed a new unit of 1,000 h.p. in its Astoria River plant in Jasper National Park.

The Manitoba Hydro-Electric Board completed its McArthur Falls development on the Winnipeg River by bringing into operation the remaining four units each of 10,000 h.p.; plant capacity is now 80,000 h.p. The Winnipeg River in Manitoba is fully developed and the next hydro-electric project will probably be located at Grand Rapids on the Saskatchewan River.



*Interior of the mountain-enclosed Bersimis powerhouse under construction in northern Quebec. Hollowed out of solid rock, it is 565 feet long, 65 feet wide and 80 feet high. Its eight turbines, three of which will be completed in 1956, will generate 1,200,000 h.p.*

**Atlantic Provinces.**—The New Brunswick Electric Power Commission has undertaken the development of the Beechwood site on the St. John River, to comprise initially two units each of 45,000 h.p. for operation in 1957, and with provision for a third unit.

The Nova Scotia Power Commission brought into operation its new plant of 6,000 h.p. in two units on the Mersey River at Lower Great Brook.

In Newfoundland, the Union Electric Light and Power Company completed its development of 2,000 h.p. on the Trinity River. In Labrador, investigations were carried out by the British Newfoundland Corporation towards future development of the large power resources of the Hamilton River.

## • Central Electric Stations

Central electric stations represent the electric-power industry and are either commercial (privately owned) stations or are publicly owned, that is, operated by federal, provincial or municipal governments. They include both wholesale and retail distribution systems, whether the energy is generated in their own plants or purchased for resale. They are also classified according to the kind of power used—hydraulic or water-driven, fuel or steam, and non-generating or distributing only.





New Brunswick's hydro power venture, Beechwood, 100 miles north of Fredericton, may be the first step in a vast long-range provincial-international plan to develop the resources of the St. John River basin. Two 45,000 h.p. units of the 13,000-h.p. Beechwood project will be in production in 1957.

In 1953, 94 p.c. of the total output of central electric stations was from hydraulic generation. The 340 hydraulic stations also produced 3 p.c. in thermal plants operated by them and the remaining 3 p.c. was generated by thermal stations using coal, fuel oil or diesel oil, or manufactured gas for fuel. The total generation of central electric stations (as shown in the annual reports) since 1929 is as follows:—

	1929	1939	1949	1953
	('000 kwh.)			
Generated by—				
Water power.....	17,603,804	27,829,017	42,779,199	58,926,462
Thermal engines.....	358,711	509,013	1,639,374	3,934,465
TOTALS.....	17,962,515	28,338,030	44,418,573	62,860,927

According to monthly data, production in 1954 and 1955 increased to 69,136,584,000 kwh. and 76,296,630,000 kwh., respectively.

Central electric stations provide much of the power for large industries, but some of them generate their own requirements. In 1953, manufacturing industries purchased from central electric stations 34,026,135,000 kwh., but generated for their own use 6,901,443,000 kwh. Of this amount, 4,273,000,000 kwh. were generated by pulp and paper industries and 790,116,000 kwh. by smelters and refineries. The primary mining industry purchased 2,566,641,000 kwh. from central electric stations but generated for its own use 215,337,000 kwh.

In 1953 there were 3,283,486 domestic, including rural, customers in Canada compared with 1,623,672 in 1939. Provincial increases during that period ranged from 78 p.c. in Ontario to 154 p.c. in Alberta. At the same time the amount of electricity consumed domestically advanced from 2,310,891,000 kwh. to 9,877,727,000 kwh., or from 1,423 kwh. to 3,008 kwh. per customer. In 1953, Ontario accounted for 52.3 p.c. of the total domestic power consumed, though this Province had less than one-third of the total population of the country.

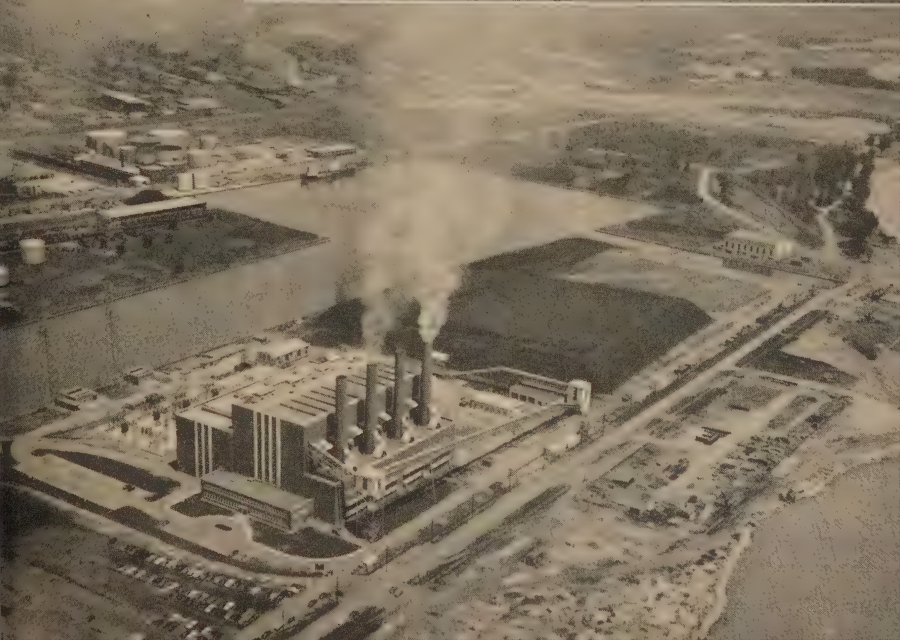
The cost of electricity to the domestic consumer is relatively moderate. The average bill, which stood at \$26.97 in 1939, has increased year by year to \$51.25 in 1953. Provincial bills in the latter year ranged from \$66.05 for Saskatchewan to \$38.43 for Quebec. The net revenue of central electric stations in 1953 was \$469,047,351. About 60 p.c. of Canada's farms have power-line service, extensive rural electrification programs having brought power to over 55,000 farms in the Prairie Provinces in the past five years.

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*In certain regions of the country, hydro power is not available for the generation of electricity so that other sources of energy—coal, gasoline, oil and natural gas—are used. This is particularly true in Prince Edward Island and Saskatchewan, as well as in some areas of Nova Scotia, New Brunswick, Alberta and even Ontario.*

Saskatchewan's newest generating plant was opened at Swift Current in September 1955. This modern gas diesel station will serve towns and villages, an extensive farm work and several oil fields in the southwestern part of the province.

Richard L. Hearn steam station at Toronto. The present 400,000 kw. capacity of this plant will be increased by the addition of a 100,000-kw. unit in the near future.





A geologist chips samples from the sheer face of a mountainside above Lake Kananaskis, southwest of Calgary, Alta. He travelled part way up the mountain on horseback and the rest of the way on foot.



# Minerals

CANADA has been developing its great and varied mineral resources at an increasing rate during the past decade. The list of metals and minerals now produced comprises more than sixty items and the tempo of their exploitation is indicated by the fact that the annual value of mineral output has risen from \$499,000,000 in 1945 to \$1,488,000,000 in 1954 and to an estimated \$1,778,000,000 in 1955. The figures for 1954 and 1955 include the value of pitchblende products produced in northern Saskatchewan and in the Northwest Territories, which was previously excluded for security reasons. While a considerable portion of this great increase in value is accounted for by price changes, the actual volume of output more than doubled during the period. The index of physical volume of output (1935-39=100) rose from 100.9 in 1945 to 145.4 in 1950 and 209.7 in 1954.

The major developments have taken place in uranium, iron ore, nickel, copper, asbestos, crude petroleum and natural gas. Uranium held the mineral spotlight throughout 1955 when events pointed up Canada's position as a leading producer of the metal. Production from the New Quebec-Labrador iron-ore deposits reached 8,500,000 tons in 1955 and will be increased to an estimated 13,440,000 tons in 1956. The deposits were brought into production following an expenditure of \$250,000,000 and four years of almost unceasing effort. In northern Manitoba, a large new nickel-copper industry has taken shape. In Gaspé peninsula, a new copper producer with an anticipated output of 125 tons of copper anodes daily has started operations. Also in Quebec, over \$70,000,000 is being spent on a further expansion of the asbestos production facilities in the Eastern Townships. And in Western Canada, the granting of approval by the United States Federal Power Commission for the importation of Canadian natural gas into the western United States paved the way for the construction of a 650-mile gas pipeline from the Peace River gas fields to the International Boundary, and opened up long-awaited market outlets to the gas industry and new industrial vistas to the Province of British Columbia.

Thus Canada's mineral frontiers are being pushed steadily forward. New mining developments in isolated areas require transportation and the building of railways opens up these new territories to settlement and other industry. A 360-mile railway has recently been completed from Sept-Îles on the north shore of the St. Lawrence River into the iron-ore deposits on the Quebec-Labrador boundary, a 145-mile railway from Sherridon to Lynn Lake in northern Manitoba, and two short branch lines into the Manitouwadge area of northwestern Ontario. A railway is under construction in western Quebec from the Val d'Or-Senneterre area into Chibougamau and from Chibougamau south to St. Felicien.

The Canadian mineral industry will be on display to the Commonwealth nations during the forthcoming Sixth Commonwealth Mining and Metallurgical Congress to be held from Sept. 8 to Oct. 9, 1957, to which Canada will be host country.

**Metals.**—Canadian metal mining recorded its most prosperous year in 1955. The unusually heavy demand for nickel, copper and zinc led to new highs in volume of output. At the same time, greatly increased base metal prices gave rise to new records in the production values of these metals. Canada's output of iron ore reached an estimated 17,377,000 tons, well over twice that of 1954, and the entry of two new uranium properties into production substantially increased Canada's output of that metal.

Initial uranium production from the famed Blind River area of northern Ontario, where huge tonnages of low-grade uranium ore have been disclosed, was started late in 1955 from the property of Pronto Uranium Mines Limited. Additional production on a very large scale from the same area will come in the near future from the Quirke Lake and Nordic Lake properties of Algom Uranium Mines Limited, which are to come into production in 1956 at a daily rate of 3,000 tons each, and from Consolidated Denison Mines Limited which is expected to start operations in April 1957 at a daily rate of 5,700 tons. Output from the Beaverlodge area of northern Saskatchewan was augmented in 1955 with the commencement of production at Gunnar Mines Limited in the latter half of the year. Several companies are actively developing properties in the area. New production is also expected in the near future from Bicroft Uranium Mines Limited in the new Bancroft area of southeastern Ontario. Canada's output of pitchblende products in 1954 was valued at \$26,468,000 and included radium salts, uranium oxides and salts, silver and cobalt.

Developments in iron ore are transforming Canada, a non-producer in 1938, into a major world source of that metal. Output from the New Quebec-Labrador properties of Iron Ore Company of Canada mushroomed from 2,240,000 short tons in 1954 to 9,520,000 tons in 1955, and output in 1956 is expected to reach 13,440,000 tons. Moreover, indications are that the completion of the St. Lawrence Seaway will pave the way for an eventual output of 22,400,000 tons or more annually. In northwestern Ontario, Steep Rock Iron Mines Limited and Caland Ore Company Limited are moving toward an annual goal of some 11,200,000 tons from the area by 1960. A major producer, Dominion Wabana Ore Limited in Newfoundland, has expanded its production facilities to 3,920,000 tons a year. Production also comes from Algoma Ore Properties Limited in the Michipicoten area of northwestern Ontario, from Marmoraton Mining Company Limited in southeastern Ontario, and from western British Columbia. By-product high-grade iron ore, a newcomer to the Canadian field, is being produced in Ontario by Noranda Mines Limited at its sulphur-iron plant at Port Robinson near Welland and at the new \$19,000,000 ammonia leaching plant of The International Nickel Company of Canada Limited at Copper Cliff.

Zinc headed the non-ferrous base metals in production advances made in 1955 owing mainly to the heavy demand for the metal by the automotive industry. A comparison of production figures for 1954 and 1955 shows that zinc increased 13 p.c., nickel 8 p.c., and copper 7 p.c. Lead declined 11 p.c.

Nickel output advanced to an all-time high of 349,000,000 lb., an increase of over 100,000,000 lb. compared with 1950. Much of the increase in output came from the Sudbury area where Canada's leading producer, International Nickel Company, completed a \$150,000,000 expansion program permitting the utilization of formerly uneconomical low-grade ores and the change-over

One of the oldest modes of transportation is still in frequent use in the most modern of quests.



Diamond drilling in search of base metals.



#### THE SEARCH GOES ON

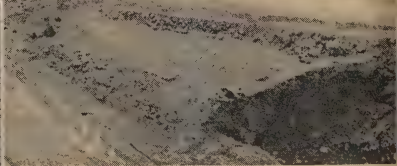
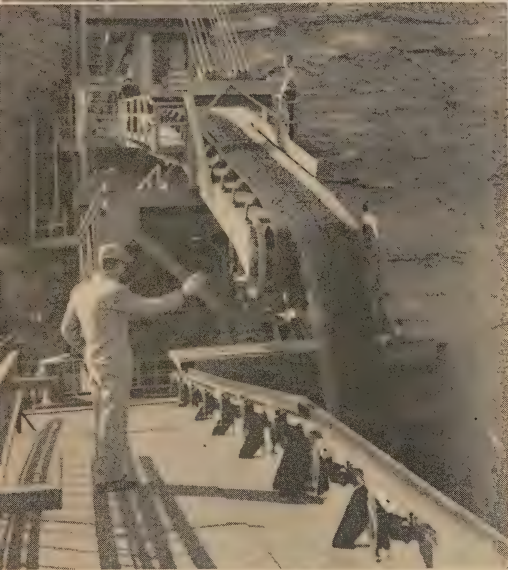
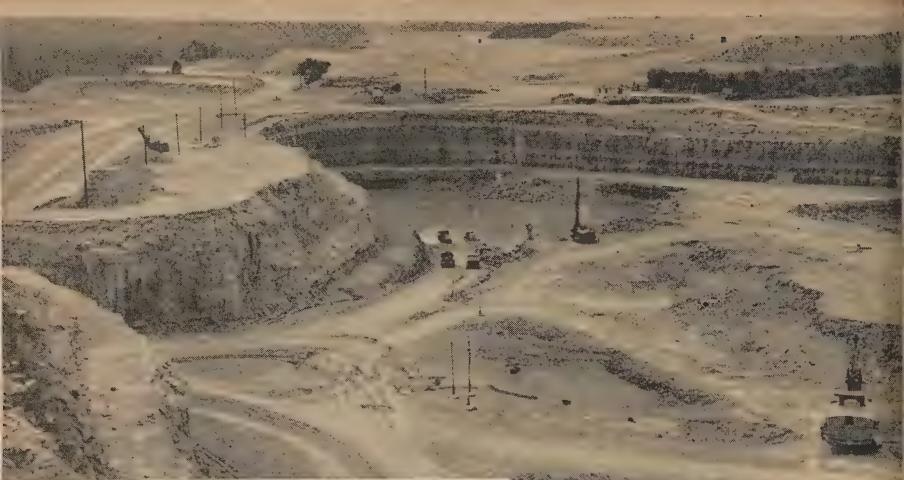
One of the brightest features of the mining outlook is the success that has been attending the search for new minerals. Significant, too, is the fact that much of this wealth has been found in areas that have already been prospected extensively and that most of the vast Canadian north has as yet received very limited attention.

Using highly sensitive instruments from aircraft, air prospectors are able to locate mineral deposits hidden beneath the earth's surface.



Preliminary ground surveys precede the setting up of drills in a promising area of southern Quebec.





*Marmora open-pit iron mine came into production in May 1955. It is the third largest producing area in Ontario.*

*Production of pelletized concentrate is shipped 64 miles by train to Picton on the shores of Lake Ontario and by boat to Lackawanna, N.Y.*

*Ship loader on the bluffs at Picton can load a 10,000-ton vessel in six hours.*

from open pit and underground mining to almost all underground mining. Falconbridge Nickel Mines Limited raised its output to an annual rate of 43,000,000 lb. in 1955, 4,000,000 lb. more than in 1954, as part of its \$55,000,000 program to increase annual production to 55,000,000 lb. by 1960. Canada's new producer, the Lynn Lake mine of Sherritt Gordon Mines Limited in northern Manitoba, is well on the way to producing almost half as much again as its rated annual capacity of 18,000,000 lb.

Paralleling the expansion in nickel output, copper production in 1955 exceeded 649,000,000 lb., an increase of 133,000,000 lb. over 1952. New production is coming from Gaspé Copper Mines Limited, which late in 1955, was raising its milling rate to a scheduled 6,500 tons daily following the receipt of power from the north shore of the St. Lawrence. New production is also

coming from Quebec's Chibougamau area, where Campbell Chibougamau Mines Limited became the area's second producer in mid-1955.

Canada's greatest lead and zinc producer and the leading world source of the metals, The Consolidated Mining and Smelting Company of Canada Limited, completed an extensive expansion of its productive facilities at Kimberley and Trail in southeastern British Columbia. In New Brunswick, a province which has had no metal mining of any consequence to date, developments indicate the establishment, in the not too distant future, of an important industry centred about the lead-zinc deposits which Brunswick Mining and Smelting Corporation Limited has under development near Bathurst. Additional deposits were brought to light in the Province recently near Newcastle by The American Metal Company Limited.

Elsewhere in Canada, new sources of base-metal wealth under development include the recently discovered copper-zinc property of Geco Mines Limited in the Manitouwadge area of northwestern Ontario, the copper property of Granduc Mines Limited in northwestern British Columbia, and the lead-zinc deposits of Consolidated Mining and Smelting on the south shore of Great Slave Lake in the Northwest Territories. Gold production has shown a steady improvement in 1955 owing partly to the decline in the premium on the Canadian dollar. Output is expected to reach 4,556,000 oz. t. in 1955.

**Industrial Minerals.**—Canada's output of industrial minerals continued to record new highs in volume and value of output in 1955. Asbestos, most of which comes from the Eastern Townships of Quebec, in 1954 accounted for over 25 p.c. of the total value of the industrial minerals produced that year. Production in 1955 was augmented by output from the four new mills that started operations in the Eastern Townships in 1954. Several development and expansion projects were under way in the district in 1955, one of the most important being that of Lake Asbestos of Québec Limited, which is spending \$20,000,000 to bring the asbestos deposits beneath Black Lake into production.

Despite the great growth in Canada's cement-producing capacity, production still falls short of demand. The annual capacity now exceeds 25,000,000 bbl. and when all plants under construction or now planned are in operation the capacity will be in the neighbourhood of 34,000,000 bbl.

*An ore-train crawls into daylight at the Geco copper-zinc mine. This mine will be the first to come into production in the fabulous Manitouwadge area of northwestern Ontario where over 14,000,000 tons of ore have been indicated in three deposits.*







*Uranium has recently held the new-mineral spotlight as a result of developments in the Beaverlodge area of northern Saskatchewan and the revelation that large deposits exist in the Blind River area of northern Ontario.*

New records are being established in the output of gypsum, which in 1955 reached an estimated 5,000,000 tons. New production came during the year from the large gypsum deposit near Milford, N.S., of National Gypsum (Canada) Limited.

Other important developments in industrial minerals included the start of production of pure mined rock salt on a large scale at Ojibway near Windsor, Ont., and the letting of a contract by Noranda Mines Limited for the construction, at Cutter in the Blind River area of northern Ontario, of the largest sulphuric acid plant in Canada. This plant will supply sulphuric acid to the uranium mills in that area and sulphur to the pulp industry of northern Ontario. It is expected to be in operation in mid-1956 and its daily output is estimated at 500 tons of sulphuric acid, 70 tons of elemental sulphur and 350 tons of pure iron sinter.

**Fuels.**—The coal industry continued to lose marketing ground to crude petroleum and natural gas. Output in 1955 was estimated at 14,600,000 tons, slightly lower than the 1954 total of 14,900,000 tons.

The results of widespread exploratory and development activity in the four western provinces, where 280 companies spent over \$400,000,000 in 1955, continued to confirm Canada's wealth of crude petroleum and natural gas resources. Reserves of crude petroleum were placed at over 2,500,000,000 bbl., 33 times those of 1946. Total Canadian production in 1955 was estimated to be 129,000,000 bbl. compared with 96,000,000 bbl. in 1954. Alberta accounted for 87 p.c. of the output, but Manitoba and Saskatchewan showed marked rates of growth. The highest daily production in Alberta, up to November 1955, was 381,493 bbl. reached during the week ended July 25 compared with a daily high in 1954 of 301,471 bbl. In Saskatchewan the





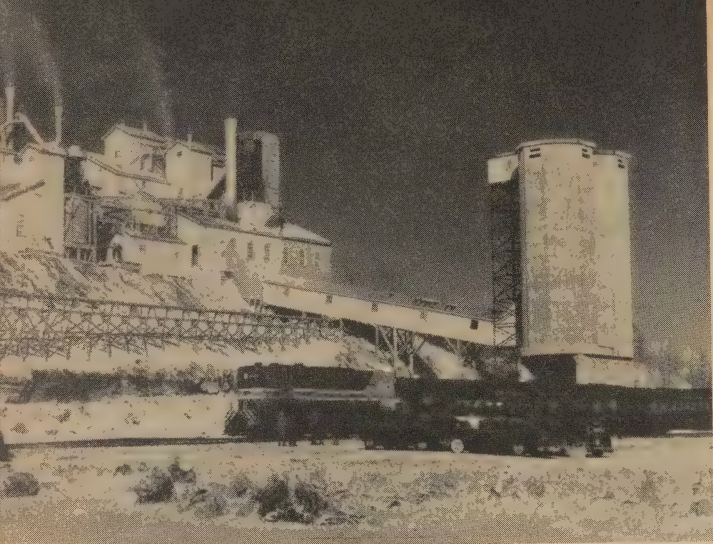
*Gunnar Mines Limited (left) in the Saskatchewan area and Pronto Uranium Mines Limited (right) in the Ontario area were both officially opened in October 1955 and are the first privately owned uranium producers to get into large-scale production in Canada.*

daily output in August 1955 averaged 40,000 bbl. and in Manitoba in October, 15,000 bbl. In both provinces, production was double that of the same month in 1954. Potential production in Western Canada considerably exceeds current production.

Natural gas reserves were placed at 18 to 20 trillion cu. feet. The first real impetus to the development of Western Canada's natural gas resources came with the granting of approval late in 1955 by the United States Federal Power Commission to a United States pipeline company to import 300,000,000 cu. feet of Canadian natural gas daily. Westcoast Transmission Company, which is supplying the gas from the Peace River areas of British Columbia and Alberta, has started the construction of a 650-mile, \$150,000,000 pipeline through British Columbia to the International Boundary. It hopes to complete the line by early 1957. Meanwhile, financing arrangements are being worked out for the proposed 2,250-mile natural-gas pipeline of Trans-Canada Pipe Lines Limited from Alberta eastward across northern Ontario to Toronto and Montreal.

### **Mineral Production in 1955**

Canada's mineral production in 1955 surpassed all previous records. Its estimated valuation of \$1,778,400,000 was 19.5 p.c. above the 1954 total of \$1,488,000,000. Ontario, Quebec and Alberta, the leading producing provinces, increased their output by \$81,000,000, \$73,000,000 and \$45,000,000, respectively. Petroleum retained first position with a valuation of \$303,500,000, copper moved up to second place with \$239,000,000 followed by nickel with \$216,000,000 and gold with \$157,000,000. The only shadows were cast by the coal-mining industry whose production continued to decline.



Near Peterborough Ont., there lies a unique deposit of nepheline, a rare, silica-free rock which, when crushed to a fine powder, is used in the manufacture of ceramics and china. In 1955 a spur railway line was completed to handle the mill's production.

The greatest advance in 1955 was made by the metals—over \$1,000,000,000's worth of metallic minerals were produced as compared with \$800,000,000's worth in 1954 and the proportion of the total output of the mining industry accounted for by metals increased from 53.7 p.c. to 56.3 p.c. A 21,000-ton increase in quantity as well as an increase in price placed copper in the lead. Nickel, in second place, recorded a 13,000-ton increase in quantity and a \$36,000,000 increase in value. The quantity of gold produced moved up over 4 p.c. and the value by almost 6 p.c.—the Canadian dollar was nearer parity with the United States dollar and therefore the price of gold was slightly higher. Zinc production increased by 50,000 tons and the value by \$26,000,000. The tonnage of lead decreased by 11.3 p.c. but a firmer price held the total valuation decrease to less than 5 p.c. Silver, which also occurs in lead ores, was lower by about 3,200,000 oz. t. The prophecies concerning iron ore are on the way to being fulfilled—in the past decade quantity increased twelvefold to reach 17,400,000 tons in 1955 valued at \$113,400,000.

The value of crude petroleum output increased by nearly 25 p.c. in 1955. The increase in quantity was 32,800,000 bbl. of which Alberta accounted for 25,000,000 bbl. Saskatchewan and Manitoba each doubled their production to exceed 11,000,000 and 4,000,000 bbl., respectively. The utilization of natural gas also increased, but coal production declined from 14,900,000 tons to 14,600,000 tons.

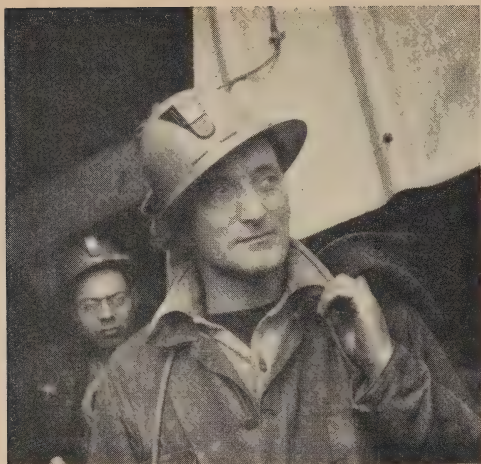
Asbestos accounts for two-thirds of the value of non-metallics produced. Shipments in 1955 exceeded 1,000,000 tons and approached \$100,000,000 in value. Salt and gypsum also increased in quantity and value of production and the quantity of sulphur in pyrite and smelter gas increased by 96,000 tons to 928,000 tons.

The value of structural material produced followed its upward trend as activity continued in the construction industry. All items increased except stone, which was produced in greater quantities in most provinces but in Nova Scotia declined from an abnormally high level in 1954 when the Canso Causeway was built.

# Quantities and Values of Minerals Produced, 1954 and 1955

Mineral	1954		1955 <sup>a</sup>	
	Quantity	Value	Quantity	Value
		\$		\$
Antimony..... lb.	1,302,333	349,249	1,970,000	536,575
Bismuth..... "	258,675	572,183	207,670	422,333
Cadmium..... "	1,086,780	1,847,526	1,971,012	3,350,720
Cobalt..... "	2,252,695	5,912,997	2,999,650	7,723,500
Columbium..... "	90	2,294	42	1,032
Copper..... "	605,464,042	175,712,693	649,207,453	239,394,952
Gold..... oz. t.	4,366,440	148,764,611	4,556,400	157,303,152
Indium..... "	477	1,278	106,000	238,500
Iron ore..... ton	7,361,598	49,666,507	17,377,252	113,385,503
Iron ingots..... "	90,562	2,910,663	116,100	4,762,000
Lead..... lb.	436,990,488	58,250,831	387,948,053	55,786,929
Magnesium and calcium.....	—	4,101,642	—	4,657,225
Molybdenite..... lb.	752,417	457,912	1,289,441	806,184
Nickel..... "	322,557,961	180,173,392	349,161,430	216,433,694
Palladium, iridium, etc..... oz. t.	189,350	7,956,087	211,820	8,118,000
Platinum..... "	154,356	12,950,469	240,000	14,715,000
Pitchblende, etc.....	—	26,467,574	—	23,000,000
Selenium..... lb.	323,529	1,617,645	431,000	3,009,000
Silver..... oz. t.	31,117,949	25,907,870	27,901,427	24,625,797
Tantalum..... lb.	77	2,696	390	9,760
Tellurium..... "	8,171	14,300	6,000	11,000
Tin..... "	333,788	263,359	397,000	317,600
Titanium ore..... ton	1,541	9,462	1,736	12,152
Tungsten..... lb.	2,170,633	5,795,781	2,282,970	6,465,638
Zinc..... "	752,982,353	90,207,285	853,931,313	116,425,122
TOTALS, METALLICS.....	—	799,916,306	—	1,001,513,368
Arsenious oxide..... lb.	1,180,350	48,333	650,000	29,250
Asbestos..... ton	924,116	86,409,212	1,055,266	98,690,514
Barite..... "	221,472	2,003,796	202,600	2,142,378
Diatomite..... "	4	192	—	—
Feldspar..... "	16,096	301,049	18,844	370,968
Fluorspar..... "	118,969	2,987,026	131,728	3,063,876
Graphite..... "	2,463	254,534	—	—
Grindstones..... "	—	—	10	1,500
Gypsum..... "	3,950,422	7,094,671	4,798,200	8,455,173
Iron oxides..... "	5,798	183,507	7,467	144,369
Lithia..... "	17,052	6,300	108,056	58,272
Magnesitic-dolomite and brucite....	—	4,394,280	—	3,859,280
Mica..... lb.	1,706,770	85,139	1,186,235	75,004
Mineral waters..... gal.	284,078	148,057	282,000	148,750
Nepheline syenite..... ton	123,669	1,770,528	137,000	1,969,000
Peat moss..... "	99,272	3,018,622	126,100	3,322,907
Quartz..... "	1,716,151	1,574,893	1,858,879	2,006,744
Salt..... ton	969,887	8,340,163	1,274,011	10,286,210
Silica brick..... M	3,578	465,157	5,502	656,933
Soapstone and talc..... ton	28,143	335,353	28,100	334,100
Sodium sulphate..... "	158,417	2,385,573	170,801	2,759,034
Sulphur..... "	532,406	4,875,969	628,261	5,560,800
Titanium dioxide..... "	88,408	3,841,270	114,800	5,091,000
TOTALS, NON-METALLICS.....	—	130,523,624	—	149,026,062
Coal..... ton	14,913,579	96,600,266	14,578,821	92,227,211
Natural gas..... M cu. ft.	120,735,214	12,482,109	143,699,000	14,457,075
Peat..... ton	6	60	—	—
Petroleum, crude..... bbl.	96,080,345	243,877,030	128,811,000	303,561,100
TOTALS, FUELS.....	—	352,959,465	—	410,245,386
Clay products.....	—	32,360,098	—	34,676,067
Cement..... bbl.	22,437,477	59,035,644	25,860,103	64,363,165
Lime..... ton	1,214,839	14,742,149	1,303,499	15,190,328
Sand and gravel..... "	110,961,034	58,987,671	123,655,944	65,754,176
Stone..... "	32,767,925	39,857,134	26,534,209	37,629,720
TOTALS, STRUCTURAL MATERIALS.....	—	204,982,696	—	217,613,456
Grand Totals.....	—	1,488,382,091	—	1,778,398,272





## Provincial Distribution

An analysis of the provincial distribution of mineral production, from east to west, shows that *Newfoundland* is increasing its proportion of the Canadian total—2.9 p.c. in 1954 to 4.0 p.c. in 1955. The increase of 63 p.c. in the value of minerals produced was almost all accounted for by iron ore from the Labrador deposits and from the modernized and expanded Wabana mine—7,900,000 tons were produced compared with 3,800,000 tons in 1954. The Province

also produced considerable quantities of zinc, lead and copper and almost all of Canada's fluorspar, as well as smaller quantities of silver, gold, gypsum, cement and other structural materials.

About 40 p.c. of Canada's coal comes from the collieries of *Nova Scotia* and coal makes up about 74 p.c. of the Province's mineral output. Consumption has been decreasing in favour of oil and gas and the value of production in *Nova Scotia* was down by \$2,000,000 in 1955. The Province produces 90 p.c. of the barite and 83 p.c. of the gypsum mined in Canada and operates important salt mines and recovery wells. The total value of all minerals was \$6,000,000 lower because of the decrease in coal and the return to a normal output of stone after completion of the Canso Causeway.

*New Brunswick's* mineral output still consists mainly of coal and structural materials—both of which increased in 1955—and some output of natural gas and petroleum. However, the first production from the Province's new base-metal mines was recorded in 1955, the value of copper, lead, silver and tungsten output being \$319,041.

The metals recorded the greatest proportion of the increase in *Quebec's* mineral production from \$278,000,000 in 1954 to \$352,000,000 in 1955. The New Quebec-Labrador mines were responsible for the spectacular increase in iron-ore production to 4,500,000 tons. There were 100,000 tons of copper, over 1,000,000 oz. t. of gold and 5,000 tons of lead in the output of the dozen metals produced in the Province. Asbestos, which exceeded 1,000,000 tons, showed the most important increase among the non-metals. Sulphur and titanium also increased and the first milling of lithia ores began near LaCorne late in the year. Cement plants in the Province shipped 9,600,000 bbl. as compared with 7,500,000 bbl. in 1954.

In *Ontario* about 80 p.c. of the total mineral valuation is derived from metals and the value of the metals produced in 1955 was \$72,000,000 higher than in 1954, twelve of the thirteen items contributing to the increase. Copper output rose from 140,000 tons to 145,000 and iron ore from 2,400,000 tons to 4,230,000. Ontario produces all of Canada's output of magnesium and calcium, platinum metals and tellurium, 99 p.c. of the cobalt, over 90 p.c. of the nickel, 55 p.c. of the gold and 45 p.c. of the copper. The increase in

non-metallics was moderate, asbestos and salt accounting for most of it. The \$5,000,000 output of petroleum and natural gas in southwestern Ontario showed little change. Ontario leads in the output of structural materials and in 1955 produced 7,700,000 bbl. of cement, 48,000,000 tons of sand and gravel and 12,000,000 tons of stone for the construction industry.

Base metals make up two-thirds of *Manitoba's* mineral output and they are all mined at Flin Flon on the Saskatchewan border and at Lynn Lake. The value of metal production more than doubled in 1955 as a result of increases in copper, nickel and zinc. The oil wells in the southwestern section of the Province also doubled their production from 2,000,000 to 4,000,000 bbl. and new equipment increased cement production to 2,000,000 bbl.

*Saskatchewan's* share of the base-metal mines at Flin Flon, its uranium mines in the Beaverlodge area, its oil and natural gas wells and coal mines of the central and southern sections are of primary importance in its mineral production. Saskatchewan is also Canada's only producer of sodium sulphate. The output of crude petroleum doubled in 1955 and provided the most spectacular increase for the Province.

Advancing oil output places *Alberta* third among the provinces as a producer of minerals. Crude oil and natural gas together raised the value of mineral production of the Province by \$47,000,000 in 1955, an amount offset to some extent by a decrease in coal. The Province's oil output was in excess of 112,000,000 bbl. and natural gas utilized was 126,750,000 M cu. ft. Structural materials were up by \$1,600,000.

The mineral output of *British Columbia* is also made up largely of metals. In 1955, 209,000 tons of zinc, 153,000 tons of lead, 22,000 tons of copper, 8,500,000 oz. t. of silver, 256,000 oz. t. of gold, 698,000 tons of iron ore and 1,100 tons of tungstic oxide were mined. Non-metallics included important quantities of asbestos, peat moss and sulphur and production of structural materials continued to increase. Commercial production of natural gas in the Peace River awaits the completion of pipeline facilities.

Base metals and coal make up the mineral production of Yukon Territory and in the Northwest Territories production includes gold, silver, natural gas and petroleum. Output was generally lower in both areas in 1955.

### Mineral Production, by Province, 1953-55

Province or Territory	1953		1954		1955 <sup>p</sup>	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$		\$		\$	
Newfoundland.....	33,780,622	2.5	42,898,033	2.9	70,317,215	4.0
Nova Scotia.....	67,364,408	5.0	73,450,898	4.9	67,356,081	3.8
New Brunswick.....	11,663,618	0.9	12,468,322	0.8	14,279,350	0.8
Quebec.....	251,881,781	18.8	278,818,070	18.7	352,100,900	19.8
Ontario.....	465,877,093	34.9	496,747,571	33.4	577,941,712	32.5
Manitoba.....	25,264,112	1.9	35,106,922	2.4	62,979,841	3.5
Saskatchewan.....	48,081,970	3.6	68,216,009	4.6	83,769,427	4.7
Alberta.....	248,863,295	18.6	279,042,735	18.7	323,740,702	18.2
British Columbia.....	158,487,812	11.9	158,630,867	10.7	188,052,793	10.6
Northwest Territories	10,300,230	0.8	26,414,000	1.8	23,454,064	1.3
Yukon Territory....	14,738,562	1.1	16,588,664	1.1	14,406,187	0.8
<b>Totals.....</b>	<b>1,336,303,503</b>	<b>100.0</b>	<b>1,488,382,091</b>	<b>100.0</b>	<b>1,778,398,272</b>	<b>100.0</b>



*Silver harvest from the sea comes daily to the fish docks of Vancouver's waterfront. Fresh iced salmon is packed in boxes for speedy delivery to market.*



# Fisheries

It is only natural that a country with a sea-coast as extensive as that of Canada and with a surface drained by such a vast network of rivers and lakes should reap the harvests of those waters and that the fishing industry should find an important place in its economy. Canada is also in the enviable position of having close to its shores some of the world's most prolific fishing grounds. The Grand Banks off the coast of Newfoundland have been extensively fished since before the colonization of this continent and the cod and other ground-fish caught there have long been part of the stable diet of many southern European, South American and West Indian peoples. The Atlantic fisheries yield to Canada's fishermen more than thirty different kinds of fish, shell-fish and marine mammals, of which the most important commercially are codfish and lobster. The great estuarial salmon fisheries of Canada's Pacific Coast are also of unique importance to the country and are supplemented by large catches of herring and halibut.

While the relative importance of the fisheries of Canada as compared with other branches of the economy is declining, the industry is still of great significance to the coastal areas. The landing of some 2,000,000,000 lb. of fish each year provides the livelihood of over 62,000 people concentrated in those areas and the processing, transporting and marketing of it for a great many more. Canadians generally are not great fish eaters. They consume on an average less than 14 lb. a year, so that about two-thirds of the production of the fishing industry is marketed outside the country, mostly in the United States.

The most significant developments in the Canadian fishing industry in recent years have occurred in the sea-fisheries of the Atlantic Coast. The isolated character of the individually operated inshore fisheries and the social problems that have been connected with it have tended to retard development of this type of fishing and there has been a movement toward the use of larger sea-going vessels, equipped with modern navigational and fish-locating devices. These vessels operate on the off-shore banks and cater to the fresh fish trade. As a result the fishermen are beginning to concentrate in the ports where the processing facilities are located, a trend that is helping to solve the problems created by isolation.

Fresh-fish processing capacity is expanding rapidly both in the Atlantic Provinces and in Quebec. New filleting and freezing plants and converted plants are catering to the demands of the market by turning out such products as blocks of frozen fish to be used for the manufacture of "fish sticks" in raw or pre-cooked forms. Increasing emphasis is being placed on quality and sanitation. At the same time, salt-fish continues as an important product, particularly in Newfoundland, but the home-curing method is giving way to mechanized curing, which provides a more standardized product.

The fresh-fish trade has grown up largely because of the improvement in methods of transportation and distribution through the wholesale and retail stages of marketing. Refrigerated storages now provide inland centres with continuous supplies of nearly all species and products and greater care is taken in the trans-shipment of small lots so that fresh fish is now more readily

available in the smaller urban centres. Also the recent practice of packaging and presenting fish products to the public in attractive form has done much to increase its popularity.

Government services, both federal and provincial, are aiding in the development of the Atlantic fisheries through loan schemes, public works projects for harbour improvement and research and demonstration in the field of marine biology and food-processing technology. Marketing is also assisted through inspection, grading and general market intelligence. The provincial governments provide credit facilities for the purchase of boats, give encouragement in industrial development and aid in extension and educational work with fishermen. At the same time, much of the recent progress made in developing the fisheries is attributable to private enterprise—to the private entrepreneurs ranging from fishing skippers operating on a small scale to business and industrial firms representing relatively large aggregates of capital and management.



*Newfoundland fish stage, counterpart which are scattered along most of coastline; where fishermen, working small dories, bring daily catch of cod cleaned, salted dried.*

The Pacific Coast salmon, herring and halibut fisheries have developed into a well-organized modernly equipped industry without the help of special forms of encouragement. The continued restoration of the Fraser River sockeye salmon run is perhaps the most important event that has occurred in the Pacific area and marks the climax of years of rehabilitation effort. A great part of the salmon catch is marketed in canned form. Halibut is marketed throughout the year from cold storages and the bulk of the herring is processed at reduction plants, emerging as herring meal and oil.

The fresh-water fisheries in terms of volume are small compared with the operations on the coasts but they are still of considerable local importance. Lake trout and whitefish from the Great Lakes, Lake Winnipeg and Great Slave Lake make up most of the commercial output.

The Federal Department of Fisheries administers all the tidal fisheries of Canada (except those of Quebec) and certain of the fresh-water fisheries. Its

...w of a drifter-trawler  
...cked at Cheticamp, N.S.,  
...d their load of herring  
...ught about 40 miles off the  
...pe Breton coast.



function is to develop the industry to optimum utilization and institute and maintain standards of quality. The Fisheries Research Board, as the scientific branch of the Department, is engaged in the study of Canada's aquatic resources with a view to their conservation and better utilization. The importance of conservation on an international level has been recognized for some time and treaties have been entered into to prevent over-exploitation of fish stocks both at sea and in the inland lakes.

Canada and the United States have joined forces under the *International Pacific Halibut Commission* to preserve the halibut stocks of the North Pacific and the Bering Sea, and under the *International Pacific Salmon Fisheries Commission* to conserve and develop the sockeye salmon of the Fraser River. Canada also became signatory in 1950, along with nine other countries, to the *International Northwest Atlantic Fisheries Convention* concerned with the maintenance of the fisheries resources of the northwest Atlantic and in 1951 the United States, Japan and Canada signed the *International Convention for the High Seas Fisheries of the North Pacific Ocean*. The *Great Lakes Fisheries*

Rt. Hon. Louis S.  
Laurent, Prime Minis-  
ter of Canada, address-  
ing annual meeting of the  
International Commission  
for the Northwest Atlan-  
tic Fisheries held at  
Ottawa in June 1955.  
Canada has entered into  
several international  
agreements to prevent  
over-exploitation of fish  
stocks at sea and in inland  
waters.





*Convention*, entered into in 1955, provides for joint action by Canada and the United States in research and in the control of the predator lamprey in these waters. Canada is also party to the *Alaska Fur Seal Agreement* and a member of the *International Whaling Commission*.

## Statistics of Fisheries Production

The Canadian fishing industry had a generally satisfactory year in 1954. The total landings of fish and fish products amounted to a little over 2,000,000,000 lb., with a landed value of \$96,700,000,000. The marketed value was close to \$185,000,000. Substantially heavier landings of cod and haddock in the Atlantic area accounted for much of the increase over the previous year. Production on the Pacific Coast was highlighted by a record halibut catch and the heaviest catch of sockeye salmon since 1913. Herring fishing, for the first time since 1951, was not interrupted by disputes between fishermen and processors.

Figures for 1953 (the latest available in detail) are given in the following tables. They do not include Newfoundland, but estimates indicate that 499,200,000 lb. of fish with a market value of \$24,000,000 were landed in that Province in 1953. Total landings for the whole of Canada, therefore, would be approximately 1,845,500,000 lb. and the marketed value \$174,227,000.

### Quantities Landed and Values of All Products Marketed, of the Chief Commercial Fishes, by Province, 1952 and 1953

(Exclusive of Newfoundland)

Province or Territory	Kind of Fish	1952		1953	
		Quantity Landed	Value of Products	Quantity Landed	Value of Products
		'000 lb.	\$'000	'000 lb.	\$'000
Prince Edward Island....	Lobsters.....	8,375	2,265	6,998	2,452
	Cod.....	3,452	189	3,059	153
	Smelts.....	622	163	889	164
Nova Scotia.....	Cod.....	149,155	12,666	116,259	10,035
	Lobsters.....	23,063	9,063	23,646	9,822
	Haddock.....	51,200	4,932	52,791	5,036
New Brunswick.....	Lobsters.....	10,379	6,538	8,630	6,470
	Sardines.....	52,887	4,466	32,734	3,195
	Herring.....	86,474	2,545	52,314	1,617
Quebec.....	Cod.....	61,156	2,866	49,289	2,271
	Lobsters.....	2,314	766	2,646	974
	Herring.....	47,112	628	46,360	651
Ontario.....	Whitefish.....	9,426	2,956	10,214	3,042
	Blue Pickerel...	7,447	1,181	10,399	1,171
	Pickerel.....	4,670	1,259	4,650	1,047
Manitoba.....	Pickerel.....	10,381	2,603	9,585	2,357
	Whitefish.....	5,758	1,582	4,539	1,239
	Saugers.....	4,295	752	2,413	436
Saskatchewan.....	Whitefish.....	5,639	852	3,889	690
	Trout.....	1,234	209	1,208	245
	Pickerel.....	1,175	202	980	178
Alberta.....	Whitefish.....	3,159	644	3,021	627
	Tullibee.....	5,428	191	6,320	311
	Pickerel.....	155	30	315	56
British Columbia.....	Salmon.....	146,965	40,495	186,914	47,936
	Herring.....	189,497	4,235	298,241	6,518
	Halibut.....	23,489	5,672	24,882	5,721
Northwest Territories....	Whitefish.....	3,831	1,247	3,866	897
	Trout.....	2,888	926	2,427	565
Totals.....	Salmon (Pac.)..	146,965	40,495	186,914	47,936
	Lobsters.....	44,131	18,634	41,920	19,718
	Cod (Atlantic)..	238,640	17,590	189,296	13,897

## Landings and Values of All Fishery Products, by Province, 1951-53

(Exclusive of Newfoundland)

Province or Territory	Quantities Landed			Value of Products		
	1951	1952	1953	1951	1952	1953
	'000 lb.	'000 lb.	'000 lb.	\$'000	\$'000	\$'000
Prince Edward Island	27,224	32,471	31,854	3,213	3,759	4,049
Nova Scotia.....	381,904	392,396	367,583	40,296	42,435	40,012
New Brunswick.....	227,038	254,599	197,206	21,155	20,504	17,523
Quebec.....	102,119	127,563	113,162	5,511	6,113	5,804
Ontario.....	30,969	38,044	44,836	7,925	8,344	7,916
Manitoba.....	35,457	31,338	23,359	7,524	5,960	4,784
Saskatchewan.....	11,512	10,612	8,481	1,749	1,440	1,281
Alberta.....	8,399	9,657	10,839	862	943	1,086
British Columbia....	620,846	404,500	542,279	85,397	58,098	66,260
Northwest Territories	7,477	7,042	6,719	2,262	2,225	1,512
<b>Totals.....</b>	<b>1,452,945</b>	<b>1,308,222</b>	<b>1,346,318</b>	<b>175,894</b>	<b>149,821</b>	<b>150,227</b>

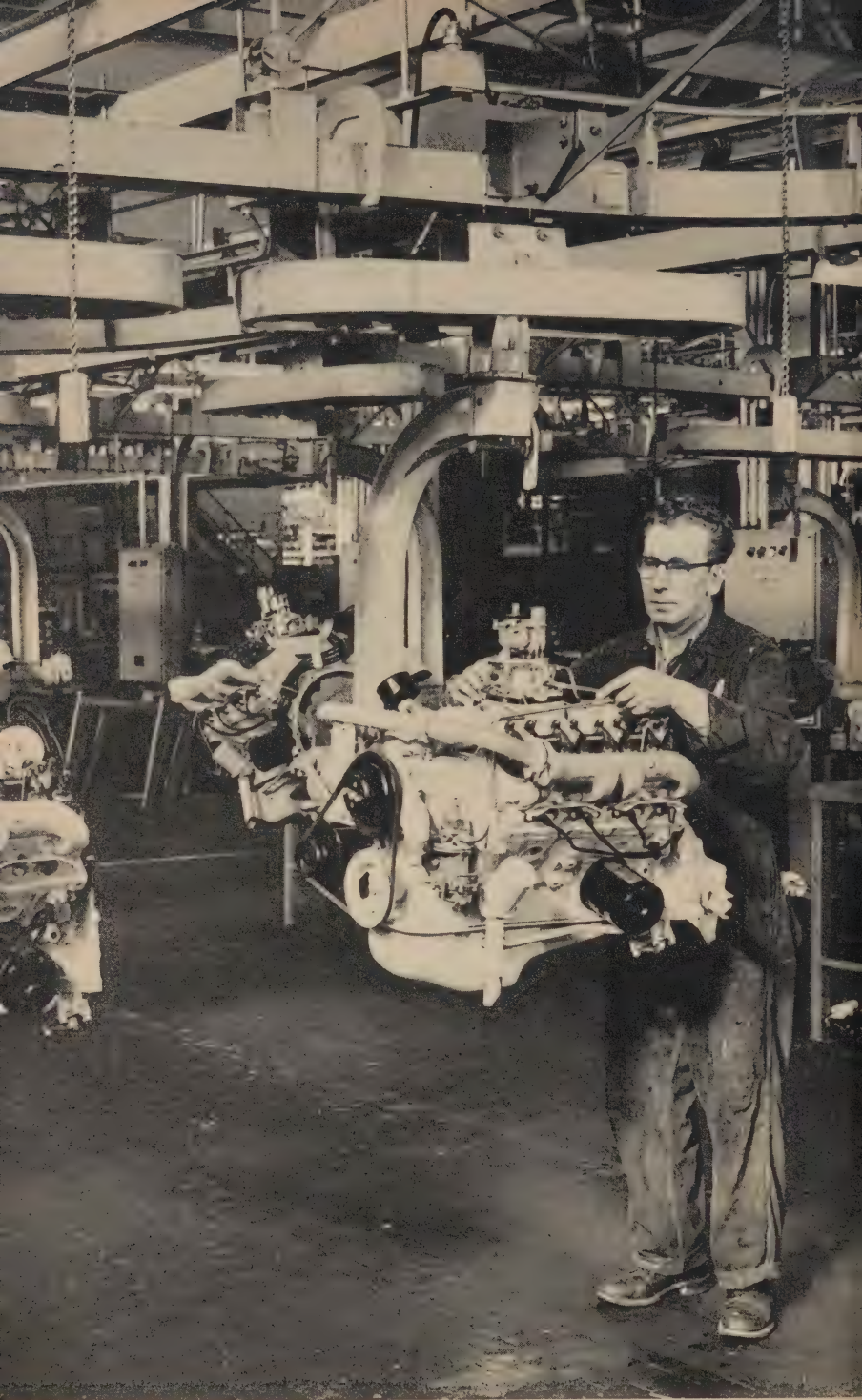
## Principal Statistics of the Fish-Processing Industry, 1948-53

Year	Establish- ments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost of Materials Used	Selling Value of Products
	No.	No.	\$'000	\$'000	\$'000	\$'000
1948.....	600	16,497	17,041	1,782	74,588	115,821
1949.....	599	16,087	16,970	1,731	69,090	111,919
1950.....	591	14,861	18,722	1,773	79,959	128,424
1951 <sup>1</sup> .....	639	18,706	24,744	2,724	101,621	163,010
1952 <sup>1</sup> .....	635	17,551	24,426	2,533	86,458	134,725
1953 <sup>1</sup> .....	598	13,731	23,092	2,410	85,908	137,310

<sup>1</sup> Includes Newfoundland.

Each year a greater portion of Canada's fishery products reaches the public in fresh-frozen form. Attractive packaging has done much to increase sales in the domestic market.





Assembly line in an automobile engine plant. The arrangement whereby the operator can work all around an engine without stooping makes for efficiency and speed of production.



# Manufactures

FIFTEEN years of war and post-war expansion has placed Canada firmly among the half dozen leading industrial nations of the world. A stable government, a consciousness of national unity, a confidence in its tremendous industrial potential creating business stability and a climate for vast capital investment, new discoveries of immense iron-ore and other mineral resources, the development of varied sources of energy required to turn the wheels of industry and the application of the latest technological processes in the exploitation of a wealth of primary resources as well as in the increasing production of secondary and tertiary commodities have all been contributing factors. The greatest expansionary influence, however, stems from the increasing world dependence on Canada as a source of industrial materials. This growing dependence has accounted for the high level of activity in natural resource industries and for a major portion of the expansion in capital facilities. At the same time, the prosperity of these industries has broadened the range of goods that can be economically produced in Canada and rising incomes of a growing population with its enhanced buying power are increasing the demand for the products of consumer industries.

The manufacturing industries of Canada now account for about 29 p.c. of the value of all the goods and services produced in the country. In 1954, 1,268,000 persons working in manufacturing plants earned \$3,881,000,000 and were responsible for a gross value of factory shipments amounting to \$17,498,000,000. These figures were all down slightly from the peak reached in 1953, but an advance to a new high is indicated for 1955.

Before World War II, the rate of growth in Canadian manufacturing had been moderate. A few industries such as pulp and paper, transportation equipment and farm implements became prominent during the 1920's but economic activity was at a low ebb in the following decade. Thus the base for much of the recent expansion in manufacturing was established during the war years. Canada had the tangible resources and the power and, given the impetus and the capital, proved itself capable of fulfilling all requirements. Expansion was particularly striking in the fields of tool-making, electrical apparatus, chemicals and aluminum. During the years 1938 to 1946, the index of manufacturing production rose from 100·6 to 189·9, an increase of 89 p.c. This rate of growth decreased to 32 p.c. in the seven post-war years, but in this period diversification was the keynote of development. The intensive search for new minerals brought about many important discoveries and rapid development followed in such fields as crude oil, natural gas, iron ore, non-ferrous metals and other less important minerals. This development and the resulting need for equipment for exploration and processing gave great impetus to industries producing capital goods. Further, the availability of a greater quantity and variety of indigenous raw materials led to the creation of more processing capacity and to the establishment of advanced raw-material and power-using industries. In particular, the discoveries of oil and gas made feasible the establishment of large chemical industries producing a great variety of goods. The defence built-up related to NATO and the war in

Korea also provided a stimulus for certain industries, particularly aircraft and electronic equipment of all kinds including those required for Canada's northern radar screen.

Many industries have increased the range of commodities manufactured so as to take advantage of the market for subsidiary or complementary products and better to meet fluctuating demand for the various products produced. Others have rounded out their operations to combine sales with processing. Greater emphasis has been placed on the use of domestic materials and the better utilization of materials formerly wasted. Industry, particularly in the metallurgical, chemical and electronic fields, has made rapid technological advances and, as a result, many new materials, substances and commodities are being marketed.

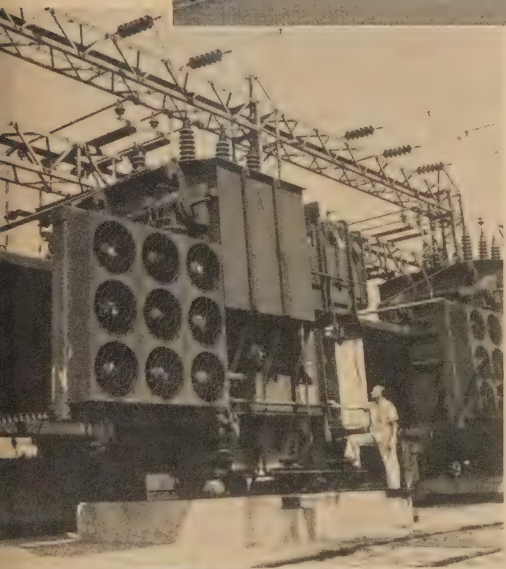
Thus Canada, with only two-thirds of one per cent of the world's population, has emerged as a highly industrial and urban society producing high-quality consumer and capital goods to meet the demands of its own people and to distribute to world markets.

The table on p. 210 shows the long-term growth in Canadian manufacturing. These figures are reasonably comparable but, since they cover such a long period, allowances should be made for certain changes in information collected and in treatment of the data. In particular, in 1952 the policy was changed regarding the collection of statistics on the production of manufactured goods with the result that "gross value of production" was replaced by "value of factory shipments". The former refers to the value at the factory, at average selling value, of all goods produced, whether sold or not sold, whether shipped or not shipped. The latter reports on all sales during the year, regardless of when the products were made. Moreover, the gross figures in each series are higher than the actual contribution of industry to the economy since each firm reporting gives the value of goods leaving the factory, an amount which includes all the work put into them at earlier stages of production. For instance, the value of shipments from a clothing factory covers not only the value of the work done by that factory, but also the work done by the people who produced the raw cotton, the shippers who brought it to Canada, the spinning mills that turned it into yarn and the weaving plants that made the cloth purchased by the clothing factory. Thus, by deducting the cost of materials and the cost of fuel and electricity purchased from the gross value of production or, from 1952, the gross value of factory shipments, a net figure is obtained that gives a truer picture of the contribution to the nation's economy by the factories concerned, but still includes items contributed by such firms as insurance companies, advertising agencies and some transportation expenses.

In the interpretation of manufacturing values over a number of years, variations in level of prices must be kept in mind. The record of *volume* of manufacturing production, as distinguished from *value*, is not affected by price changes and is therefore more reliable as an indication of growth of goods and services available to the consumer. In volume terms, the index of manufacturing production (1935-39=100) was 263.0 in 1953 as compared with 189.9 in 1946. The durable goods index stood at 323.9 and the non-durable goods at 224.1 in 1953 as against 205.1 and 180.2, respectively, in the first post-war year.

one of the largest  
ferro-alloys plants  
in the Common-  
wealth stretches  
almost a mile  
along the Wel-  
and Canal in  
Southern Ontario.

The addition of al-  
loys to steel in  
hundreds of vary-  
ing compositions  
gives it special  
properties of pur-  
ity, strength and  
hardness to fit it  
for the multitu-  
dinous jobs it must  
perform.



The addition of silicon provides special electrical properties for the giant transformer or the tiny motor in an electric razor.



The addition of chromium produces stainless steel used where cleanliness is requisite.



Alloy steels containing magnesium bear the brunt of wear, strain and shock.





## Summary Statistics of Manufactures, 1870-1954

Year	Estab- lish- ments	Employees	Earnings	Cost of Materials	Net Value of Products	Gross Value of Products
	No.	No.	\$'000	\$'000	\$'000	\$'000
1870 <sup>1</sup> .....	41,259	187,942	40,851	124,908	96,710	221,618
1880 <sup>1</sup> .....	49,722	254,935	59,429	179,919	129,757	309,676
1890 <sup>1</sup> .....	75,964	369,595	100,415	250,759	219,089	469,848
1900 <sup>2</sup> .....	14,650	339,173	113,249	266,528	214,526	481,053
1910 <sup>2</sup> .....	19,218	515,230	241,008	601,509	564,467	1,165,976
1917 <sup>3</sup> .....	21,845	606,523	497,802	1,539,679	1,281,132	2,820,811
1920 <sup>3</sup> .....	22,532	598,893	717,494	2,085,272	1,621,273	3,706,545
1929 <sup>4</sup> .....	22,216	666,531	777,291	2,029,671	1,755,387 <sup>4</sup>	3,883,446
1933.....	23,780	468,658	436,248	967,789	919,671	1,954,076
1939.....	24,805	658,114	737,811	1,836,159	1,531,052	3,474,784
1940.....	25,513	762,244	920,873	2,449,722	1,942,471	4,529,173
1945.....	29,050	1,119,372	1,845,773	4,473,669	3,564,316	8,250,369
1946.....	31,249	1,058,156	1,740,687	4,358,235	3,467,005	8,035,692
1947.....	32,734	1,131,750	2,085,926	5,534,280	4,292,056	10,081,027
1948.....	33,420	1,155,721	2,409,368	6,632,882	4,938,787	11,875,170
1949 <sup>5</sup> .....	35,792	1,171,207	2,591,891	6,843,231	5,330,566	12,479,593
1950.....	35,942	1,183,297	2,771,267	7,538,531	5,942,058	13,817,526
1951.....	37,021	1,258,375	3,276,281	9,074,526	6,940,947	16,392,187
1952.....	37,929	1,288,382	3,637,620	9,146,172	7,443,534 <sup>6</sup>	16,982,687 <sup>7</sup>
1953.....	38,107	1,327,451	3,957,018	9,380,559	7,993,069 <sup>6</sup>	17,785,417 <sup>7</sup>
1954 <sup>p</sup> .....	—	1,268,449	3,881,378	9,205,701	7,849,379 <sup>6</sup>	17,497,769 <sup>7</sup>

<sup>1</sup> From 1870 to 1890, the figures include all establishments irrespective of the number of employees, including house building and custom and repair work. <sup>2</sup> Includes all establishments employing 5 hands or over. <sup>3</sup> Includes all establishments irrespective of the number of employees, but excludes construction and custom and repair work. <sup>4</sup> From 1929 on, net value of production represents gross value less the cost of materials, fuel and electricity. Before this, only cost of materials is deducted. <sup>5</sup> From 1949 on, the figures include Newfoundland. <sup>6</sup> Value added in manufacture (see text p. 208). <sup>7</sup> Gross value of factory shipments (see text p. 208).

Though hundreds of new commodities were added to Canada's list of manufactured products in the post-war years, much the same group of industries held the lead in 1953 as in 1946. Growth was general in all manufacturing industries but more pronounced in some than in others so that the order of importance was changed somewhat. Aircraft, motor-vehicle parts and miscellaneous food products moved up to be within the fifteen top industries and electrical apparatus and supplies, flour and feed mills and women's factory clothing moved out of that category.

Pulp and paper, Canada's leading industry for many years, increased its output by 124 p.c. from 1946 to 1953. In the latter year it shipped goods to the value of \$1,180,000,000 which was nearly 7 p.c. of the total value of shipments of all factories. This industry is the largest consumer of electric energy and the largest industrial buyer of goods and services, including transportation, in the land. It has an output of newsprint five times that of any other country and provides over one-half the world's newsprint needs. It is also the world's greatest pulp exporter and the second producer of pulp. Thus, with four-fifths of its output moving abroad, this industry ranks as one of the major industrial enterprises of the world. Sawmilling, another forest-based industry, has also doubled its annual value of shipments during the 1946-53 period to \$581,000,000. The expansion in both these industries required heavy capital outlays which, from 1948 to 1953, amounted to \$606,000,000 and \$113,000,000, respectively (figures from 1946 are not available).

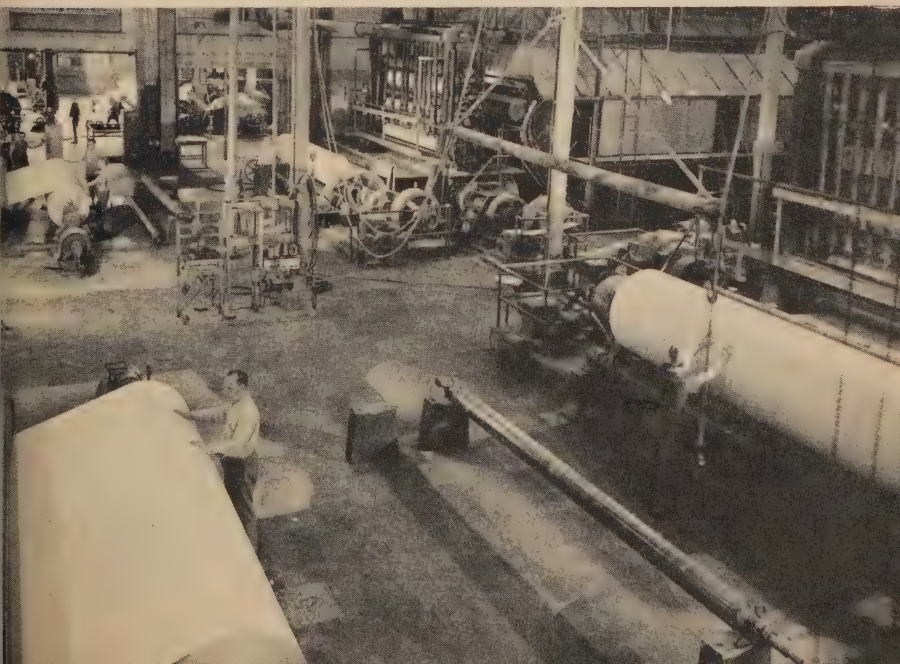
The second largest industry, non-ferrous metal smelting and refining, increased its shipments by 186 p.c. from 1946 to \$871,000,000 in 1953. Canada is one of the world's leading producers of metals, standing first in the production

of nickel, second in aluminum and zinc and fourth in copper and lead. This industry, based on mineral deposits, is no less dependent upon water-power resources because the smelting and refining of ore requires large amounts of cheap electricity. The availability of such low-cost power was the main factor in the establishment of Canada's large aluminum industry which uses imported ores and concentrates. It takes 20,000 kwh. of electric energy to process one ton of aluminum, enough power to serve the average Canadian home for twelve years, and Canada produced over 500,000 tons in 1953. Capital outlays in the 1948-53 period amounted to \$218,000,000.

The production of motor-vehicles has risen to third place among the industries of Canada, the value of sales having increased by 333 p.c. since 1946. The number of passenger cars produced rose from 91,871 in 1946 to 360,385 in 1953; in the latter year there was one passenger car registered for every 5.9 persons in the country. Capital investment in the 1948-53 period amounted to \$127,000,000. The prosperity of the automobile industry has perhaps a greater influence on more industries and services and, therefore, on a greater portion of the population than has any other industry. Producers of petroleum, steel, plate glass, nickel, lead, rubber, textiles and even iron find in the automobile industry their largest single customer. There are 12,000 to 20,000 different parts in every automobile and they contain, in one form or another, every raw material and almost every agricultural product that Canada produces and are obtained from sources distributed from one end of the country to the other. Also the merchandising of motor-vehicles and of gasoline and oil ranks second only in importance to the distribution of food and beverages. The automobile parts industry is now in eleventh place in value of manufacturing production and the rubber goods industry, almost entirely dependent on motor-vehicles, is in twelfth place. The transportation

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*The dry end of a paper machine. The newsprint on these huge rolls is slit and rewound to desired widths for shipment. Newsprint is Canada's most important manufactured product—value of production in 1954 amounted to \$657,487,000.*



group of industries also includes the manufacture of railway rolling-stock which was in tenth place in 1953. Investment in equipment has kept the locomotive and car-building companies active while the maintenance and repair shops and parts suppliers, operating on a continuing basis, provide a steady influence in production and employment.

Four manufacturing industries based on agricultural production were included among the first fifteen in 1953—slaughtering and meat packing was in fourth place, butter and cheese in ninth, miscellaneous food preparations in thirteenth and bread and bakery products in fourteenth. The rate of growth in these industries has been somewhat slower than in other industries because production depends largely on domestic demand, the growing population and greater per capita consumption absorbing the increased output. There was, within these industries, a wide shift in importance of commodity, but as a whole the slaughtering and meat-packing industry increased its sales by 74 p.c. in the 1946-53 period, the butter and cheese industry by 69 p.c. and miscellaneous food products 105 p.c.

The expansion in the value of shipments of petroleum products, the fifth largest industry, was one of 211 p.c. to \$695,000,000. Canada's growing industrialization and mobilization is reflected in the rising rate at which petroleum products are used. There has been a tremendous increase in the consumption of gasoline by motor-vehicles and the changeover from the use of coal to oil by manufacturing industries, the railways and domestic consumers has contributed greatly to demand. With the development of Canada's western oil fields and the construction of pipelines for transporting crude petroleum eastward and westward, domestic wells have been able to meet a much greater proportion of the nation's crude oil requirements. Canadian crude made up 10 p.c. of the input of Canadian refineries in 1946 and 46 p.c. in 1953. Almost all of the output of Canadian refineries is consumed in Canada. Capital expenditures in 1950-53 amounted to \$199,000,000.

The primary iron and steel industry was called upon to increase its effort to meet the needs of the general expansion. Shipments trebled in value from \$153,000,000 in 1946 to \$459,000,000 in 1953, making it the seventh largest industry. The construction of new blast furnaces enabled the output of pig iron to be stepped up from 1,406,000 tons in 1946 to 3,012,000 tons in 1953 and production of steel ingots and castings rose from 2,327,000 tons to 4,116,000 tons. Capital expansion amounted to \$211,000,000 from 1948 to 1953.

One of the most remarkable expansions during the period was made by the aircraft and parts industry, which increased its shipments from \$36,000,000 in 1946 to \$399,000,000 in 1953, bringing it up to eighth place in value of output. This growth was greatly accelerated by the defence production program that began with the outbreak of war in Korea in 1950. An all-Canadian long-range fighter was developed and put into production as well as several U.S. types of defence aircraft. On the civilian side, a number of types of passenger aircraft designed to meet Canadian flying conditions, especially in the northern areas, were placed on the assembly line and have met with a good response from purchasers abroad and at home. This development has been accompanied by the establishment of new types of production, such as aircraft instruments, needle bearings, and special alloys to withstand the heat of jet engines.



Increasing population and higher incomes are reflected in the consumption of meat and other animal products. Each week in 1955 the domestic market absorbed the product of 33,300 cattle, 100,000 hogs, 16,000 calves and 5,600 sheep and lambs.



Men's factory clothing was the only textile industry to appear among the fifteen leading industries in 1953—the value of its output went up 79 p.c. since 1946. The textile industry generally has suffered from economic pressures during recent years but increased retail sales have assisted the factory clothing industry to higher levels.

### Principal Statistics of the Fifteen Leading Industries, 1953

Industry	Estab- lish- ments	Employees	Earnings	Cost of Materials Used	Value Added by Manu- facture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000
Pulp and paper.....	127	58,194	235,742	499,351	599,935	1,179,665
Non-ferrous metal smelting and refining	18	25,115	94,546	508,117	310,207	870,918
Motor-vehicles.....	20	32,973	131,316	557,709	273,598	835,555
Slaughtering and meat- packing.....	152	22,887	74,432	672,764	152,023	829,468
Petroleum products...	55	11,858	48,575	507,214	159,603	694,989
Sawmills.....	8,194	60,933	142,131	304,585	269,066	580,694
Primary iron and steel.	62	34,956	129,710	212,374	216,958	458,904
Aircraft and parts....	43	38,048	142,376	135,757	260,548	398,744
Butter and cheese.....	1,527	20,697	52,508	293,916	95,787	396,956
Railway rolling-stock..	36	35,447	118,026	179,892	153,678	338,321
Motor-vehicle parts....	179	23,335	81,187	162,324	141,252	307,677
Rubber goods.....	72	22,600	70,995	114,337	172,674	290,735
Miscellaneous food pre- parations.....	322	9,757	26,028	200,379	80,865	284,366
Bread and other bakery products.....	2,571	33,540	80,903	129,225	139,988	277,998
Men's factory clothing.	601	35,119	74,710	147,284	125,834	273,946
<b>Totals, Fifteen Leading Indus- tries.....</b>	<b>13,979</b>	<b>465,459</b>	<b>1,503,185</b>	<b>4,625,228</b>	<b>3,152,016</b>	<b>8,018,936</b>
Percentages of Fifteen Leading Industries to All Industries, 1953...	36.68	35.06	37.99	49.31	39.43	45.09

There are other factors, also, that indicate the growth in manufacturing. The greater consumption of fuel and the changing emphasis on the different types is shown in the following table.

**Fuel and Electricity Consumed in Manufacturing Industries,  
1926, 1937, 1946 and 1953**

Type	1926	1937	1946	1953 <sup>1</sup>
Coal, Bituminous and sub-bituminous..... '000 tons	5,777	5,736	8,074	10,069
Anthracite..... "	284	174	179	195
Lignite..... "	146	265	395	467
Coke..... "	475	658	691	674
Gasoline..... '000 Imp. gal.	2,387	3,665	27,537	64,521
Kerosene..... "	2	334	1,245	6,099
Fuel oil..... "	110,379	167,825	376,007	834,642
Liquefied petroleum gases..... "	—	—	—	9,841
Natural gas..... M cu. ft.	40,589	5,802	8,745	21,516
Manufactured gas..... "		59,952	95,491	73,441
Wood..... '000 cords	722	504	348	299
Electricity <sup>3</sup> ..... '000,000 kwh.	2	19,421	27,965	40,928

<sup>1</sup> Includes Newfoundland and cheese industry in Quebec.

<sup>2</sup> Not collected.

<sup>3</sup> Exclusive of the butter

The proportion of earned dollars in the national income derived from manufacturing in 1926 was 22 p.c., in 1939 it was 27 p.c., in 1946, 28 p.c. and in 1953, 30 p.c.

**National Income, by Industry, 1926, 1939, 1946 and 1953**

(Millions of dollars)

Industry	1926	1939	1946	1953
Manufacturing.....	914	1,164	2,782	5,722
Agriculture.....	788	512	1,276	1,891
Forestry.....	67	71	220	326
Fishing and trapping.....	29	12	78	60
Mining, quarrying and oil wells.....	138	299	302	721
Construction.....	201	148	430	1,178
Transportation, storage and communication, public utilities.....	536	508	1,105	2,025
Trade.....	507	590	1,411	2,705
Finance, insurance and real estate.....	390	426	630	1,382
Service.....	503	432	772	1,459
Government.....	320	460	1,057	1,820
Net interest and dividends to non-residents....	-208	-249	-242	-246
<b>Net National Income at Factor Cost<sup>1</sup></b>	<b>4,185</b>	<b>4,373</b>	<b>9,821</b>	<b>19,043</b>

<sup>1</sup> Earnings of the factors of production—wages and salaries and supplementary labour income, profits, interest, net rent and net income of agricultural and other unincorporated business.

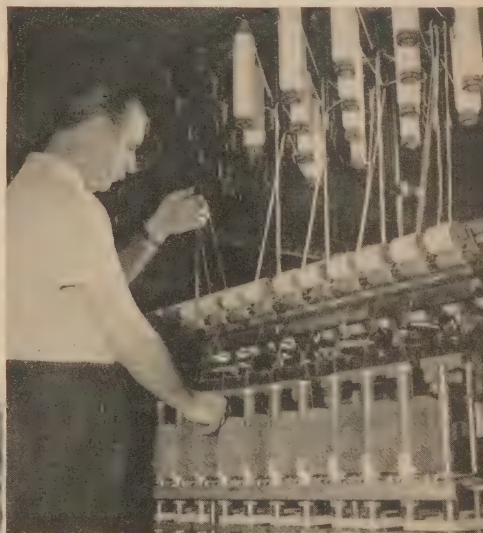
## Current Trends in Manufacturing

The gross value of production of the manufacturing industries continued its upward trend in 1953, reaching \$17,785,416,854, a 4.7-p.c. increase over 1952. The 1953 advance in value was accounted for by an increase of 6.8 p.c. in the physical volume of production offset by price declines. The production of durable goods increased more rapidly than that of non-durables.

Accompanying the rise in output was an increase of 3.0 p.c. in the number of persons employed and of 8.7 p.c. in the amount of salaries and wages paid. Salary and wage payments at \$3,957,018,348 were the highest on record. Average earnings were \$2,981 per head. Of a total of approximately 1,327,451 employees in manufacturing, 303,245 were women and girls. The average work week was 41.7 hours for the wage-earner and 39.0 for the salaried employee.

**Provincial Distribution.**—*Ontario* is Canada's most industrialized province. Since 1946 its manufacturing production has increased by 136 p.c. to \$8,876,504,990 in 1953, and employment has risen by 27 p.c. to 634,554 in the same comparison. In 1953, Ontario's industries produced about half of the nation's manufactured goods, employed nearly half of the manufacturing working force and paid more than half of the salary and wage bill.

A new "Terylene" plant near Kingston, Ont., produces polyester fibre for Canadian textile mills to convert into clothing of all kinds and into many industrial materials.





Ontario has the greatest diversification of manufacturing production of any province and certain industries are carried on there almost exclusively. In 1953, the Province turned out 90 p.c. or more, by value, of the Canadian production of motor-vehicles and parts, heavy electrical machinery, agricultural implements, machine tools, starch and glucose, bicycles and parts, tobacco products and soaps and washing compounds; between 80 p.c. and 90 p.c. of the rubber goods, breakfast foods, carpets, mats and rugs, automobile accessories of fabric, tanned leather, wine, typewriter supplies, artificial abrasives, cordage, rope and twine, and electric batteries; and between 70 p.c. and 80 p.c. of the primary iron and steel products, radio and television sets and parts, iron castings, scientific and professional equipment, wool yarn, white metal alloys, sporting goods, boiler and plate work, refrigerators, vacuum cleaners and appliances, toys and games, household and office machinery, jewellery and silverware, and hardware tools and cutlery.

*Quebec*, producing about 30 p.c. of Canada's total value of manufactured goods in 1953, is the second largest industrial province. In common with the other provinces, Quebec experienced great industrial expansion following World War II. From 1946 to 1953, the value of output rose by 116 p.c. to \$5,386,784,863 and the number of persons employed in manufacturing increased by 24 p.c. to 441,555.

Quebec's leading industry is pulp and paper, which had an output of more than \$511,000,000 in 1953—about 43 p.c. of the national total for that industry. Non-ferrous metal smelting and refining is next in importance, reporting value of shipments amounting to \$360,000,000 in 1953. Quebec predominates in the production of many industries. In 1953 the Province produced 94 p.c. of the Canadian value of shipments of tobacco, cigars, and cigarettes, 83 p.c. of the cotton thread, and over 70 p.c. of the oiled and water-proofed clothing, children's clothing, oilcloth linoleum and coated fabrics, and of the dyeing and finishing of textiles; between 60 p.c. and 70 p.c. of the value of production of women's factory clothing, synthetic textiles and silk, cotton yarn and cloth, corsets, narrow fabrics, miscellaneous clothing, fur dressing and dyeing, and process cheese; between 50 p.c. and 60 p.c. of the leather footwear, synthetic textiles and silk, men's factory clothing, asbestos products, miscellaneous textiles, and fur goods.

*British Columbia*, with factory shipments totalling \$1,367,000,000 in 1953, ranked third among the provinces in manufacturing production. The post-war expansion is indicated by an increase of 112 p.c. in the value of production from 1946 to 1953, and by an increase of 24 p.c. in the number of persons employed in manufacturing—75,484 to 93,844.

The major industry is sawmilling which reported a gross value of shipments of \$323,000,000 in 1953 followed by pulp and paper with \$139,000,000 and fish-processing with \$66,000,000. The sawmilling industry in British Columbia accounted for 56 p.c. of the Canadian total value of shipments for the industry, and the fish-processing industry for 48 p.c. Non-ferrous metal smelting and refining ranks high among the leading industries of the Province and recent expansion programs together with the new development at Kitimat for the production of aluminum will add to its importance; production figures are confidential and cannot be published. Other industries of importance are: veneers and plywoods, slaughtering and meat-packing, sash, door and planing mills, petroleum products, food preparations, fertilizers and shipbuilding.

Manufacturing activities in the *Atlantic Provinces* are based mainly on the forests and the sea. Considering the four provinces as a unit, pulp and paper, fish processing, sawmills, and primary iron and steel predominated, accounting for 43 p.c. of the total production of the region in 1953. From 1946, the gross value of shipments of the three Maritime Provinces—Prince Edward Island, Nova Scotia and New Brunswick—increased by 77 p.c., from \$361,000,000 to \$639,000,000; the individual increases were 107 p.c., 79 p.c. and 73 p.c., respectively. In the same comparison, employment in manufacturing for the three provinces together increased from 54,211 to 58,320 or by 8 p.c.; individually the increases were 3 p.c., 8 p.c., and 7 p.c., respectively. For Newfoundland, which became part of Canada in 1949, the increase in value of production since that year was about 58 p.c., and in number of employees, about 53 p.c.

In Newfoundland, manufacturing production is dominated by the pulp and paper and fish-processing industries which, in 1953, accounted for 68 p.c. of the total production of the Province. In Prince Edward Island, agricultural and fishery resources make butter and cheese, fish processing and prepared stock and poultry feeds the leading industries. In Nova Scotia, primary iron and steel is the leading industry, having reported shipments valued at \$41,000,000 in 1953. This industry benefits from its location close to the coal mines of Cape Breton and its easy access by sea to the iron ore of Newfoundland. Fish processing ran second, value of shipments being \$38,000,000. Shipbuilding came next with shipments of \$24,000,000, and sawmills and pulp and paper together accounted for shipments of about \$38,000,000. The forests of New Brunswick provide the raw materials for the Province's leading industries; pulp and paper reported shipments of \$83,000,000 in 1953 and sawmills reported shipments of \$25,000,000. Fish processing ranked third in value of shipments with a total of \$15,000,000.

Developments in the post-war years have resulted in an increase in the gross value of shipments of the *Prairie Provinces* of 81 p.c., from \$777,000,000 to \$1,407,000,000 in 1953. Alberta showed the greatest advance, having an increase of 116 p.c. compared with Manitoba with 66 p.c., and Saskatchewan with 58 p.c. Employment in manufacturing in the three Provinces together increased by 21 p.c. from 1946 to 1953—72,973 to 88,426.

In Manitoba, slaughtering and meat-packing is the leading industry, having shipments valued at \$110,000,000 in 1953. Railway rolling-stock was second with \$41,000,000, followed by butter and cheese factories, flour mills, petroleum products, men's factory clothing and miscellaneous food preparations, each of which shipped goods valued at over \$20,000,000. Manitoba's industries are well diversified, a large number of small and medium-sized firms having located in the Winnipeg area in the post-war period. In Saskatchewan, manufacturing has continued along more or less traditional lines. Petroleum products led in 1953 with shipments valued at \$63,000,000. Flour mills were second with \$43,000,000, slaughtering and meat-packing third with \$32,000,000, and butter and cheese factories fourth with \$28,000,000. In Alberta, slaughtering and meat-packing led the industries in 1953 with shipments of \$112,000,000. Petroleum products came second with \$90,000,000, flour mills third with \$40,000,000, followed by butter and cheese with \$34,000,000. Sawmills and sash, door and planing mills each had shipments of over \$20,000,000. Other industries are advancing rapidly in the Province,



*The establishment of television service in Canada in 1952 greatly precipitated demand for receiving sets. Producers' domestic sales mounted from 40,000 sets in 1951 to 624,000 in 1954.*

particularly the manufacture of such products as drill bits and tanks, heat exchangers and other bulky equipment for the rapidly growing oil and gas industries. Chemicals have also made striking gains.

### ***Statistics of Manufactures, by Province, 1953***

NOTE.—Values are rounded to the nearest thousand.

Province or Territory	Estab-lish-ments	Em-ployees	Earnings	Cost of Fuel and Elec-tricity	Cost of Materials Used	Value Added by Manu-facture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland....	939	10,575	26,605	3,768	44,972	57,785	106,525
Prince Edward Island.....	216	1,809	3,096	356	16,964	5,879	23,199
Nova Scotia.....	1,591	32,040	76,391	11,552	180,544	127,917	320,012
New Brunswick....	1,094	24,471	59,753	11,335	163,798	120,617	295,750
Quebec.....	12,132	441,555	1,225,573	145,764	2,816,373	2,424,647	5,386,785
Ontario.....	13,114	634,554	2,017,982	186,244	4,560,135	4,130,126	8,876,505
Manitoba.....	1,540	43,740	121,126	9,672	345,403	229,797	584,872
Saskatchewan....	1,062	11,604	32,396	6,368	180,304	79,941	266,613
Alberta.....	2,072	33,082	92,605	9,933	346,221	199,660	555,815
British Columbia.	4,317	93,844	300,921	26,642	724,496	615,686	1,366,824
Yukon and North-west Territories	30	177	570	155	1,350	1,012	2,517
<b>Canada.....</b>	<b>38,107</b>	<b>1,327,451</b>	<b>3,957,018</b>	<b>411,789</b>	<b>9,380,559</b>	<b>7,993,069</b>	<b>17,785,417</b>



## Preliminary Statistics of Manufactures, by Province, 1954

NOTE.—Values are rounded to the nearest thousand.

Province or Territory	Em- ployees	Earnings	Cost of Fuel and Elec- tricity	Cost of Materials Used	Value Added by Manu- facture	Value of Factory Shipments
	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	10,677	30,245	4,037	47,358	57,196	108,591
Prince Edward Island.....	1,799	2,993	388	16,980	5,904	23,272
Nova Scotia.....	30,342	71,554	10,036	162,716	132,319	305,071
New Brunswick.....	22,782	56,234	12,015	158,076	119,454	289,545
Quebec.....	424,205	1,204,263	149,355	2,785,899	2,426,314	5,361,568
Ontario.....	597,850	1,951,974	187,929	4,424,150	3,913,978	8,526,057
Manitoba.....	41,204	116,169	10,280	316,677	230,965	557,922
Saskatchewan.....	11,750	33,712	6,927	169,847	104,823	281,597
Alberta.....	32,686	95,990	10,264	343,528	216,678	570,470
British Columbia.....	94,958	317,639	31,404	778,980	659,785	1,470,169
Yukon and Northwest Territories.....	196	605	54	1,490	1,963	3,507
<b>Canada.....</b>	<b>1,268,449</b>	<b>3,881,378</b>	<b>422,689</b>	<b>9,205,701</b>	<b>7,869,379</b>	<b>17,497,769</b>

**Manufacturing in Urban Centres.**—The prosperity of most of the cities and towns of Canada is intimately connected with their manufacturing industries which provide employment for a large proportion of the labour forces.

### Urban Centres with Value of Factory Shipments of over \$100,000,000 in 1953

NOTE.—Statistics for urban centres with three or more establishments cannot be published when one establishment has 75 p.c. or two establishments 90 p.c. of the total production.

Urban Centre	Estab- lish- ments	Employees	Earnings	Cost at Plant of Materials Used	Value Added by Manu- facture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000
Montreal.....	4,398	193,129	544,284	18,428	1,067,911	2,042,663
Toronto.....	3,780	154,251	478,086	18,968	980,873	1,875,747
Hamilton.....	566	60,451	201,516	22,408	385,516	824,407
Windsor.....	338	37,514	140,481	7,560	402,210	682,273
Vancouver.....	1,316	33,822	108,897	5,448	255,907	448,592
Montreal East.....	32	5,978	22,242	14,609	315,805	425,407
Winnipeg.....	860	28,230	76,008	3,267	156,861	300,187
Sarnia.....	51	8,220	30,791	13,937	124,295	213,783
London.....	297	16,858	49,681	2,444	89,927	199,099
Kitchener.....	204	15,621	45,096	1,997	95,039	193,983
Edmonton.....	334	11,437	34,279	2,378	122,361	188,602
St. Laurent.....	54	16,697	59,119	1,470	76,323	185,073
Quebec.....	437	16,846	40,543	5,078	92,517	177,239
New Toronto.....	52	7,274	26,173	2,017	83,341	156,529
Calgary.....	313	9,099	27,821	1,679	96,965	152,311
Leaside.....	59	11,136	36,906	1,576	66,627	144,685
St. Catharines.....	112	12,545	41,343	2,195	65,772	142,193
St. Boniface.....	91	4,511	13,963	1,128	103,965	134,378
Brantford.....	162	11,496	37,456	1,784	59,231	132,654
Sault Ste. Marie.....	60	9,006	33,375	7,225	65,836	127,561
Peterborough.....	103	10,062	32,622	1,440	61,640	119,421
Shawinigan Falls.....	49	5,870	19,312	9,448	48,669	114,596
Welland.....	63	8,118	30,235	5,172	51,495	113,855
New Westminster.....	125	6,382	20,430	1,283	58,527	111,471
Niagara Falls.....	85	7,021	23,603	7,042	43,487	111,167
Three Rivers.....	97	7,364	22,157	6,614	47,395	110,820
Lachine.....	71	9,335	32,902	1,188	39,105	106,710
Ottawa.....	288	10,466	29,663	1,917	45,683	103,002
Chatham.....	82	4,107	13,562	946	68,937	102,488



Power drillers cut path for a new highway from Vancouver to Squamish. Below is a railway roadbed which will parallel the highway for most of its tortuous route along the steep eastern bank of Howe Sound. Lower still and not seen is the right-of-way for an Upper Level road to Horseshoe Bay.

# Capital Expenditures

THE relative size of the capital expenditure programs of business, governments and individuals forms one of the most important determinants of the level of economic activity within the nation. Capital expenditures not only provide employment for a large number of workers in both the construction industry and in those industries supplying construction materials and machinery, but also open up new employment opportunities for a growing labour force, contributing to higher income levels and therefore to a chain reaction in activity. In addition, they reflect the extent to which business and government are providing for the future.

Capital expenditures are defined as those outlays made to replace, modernize and expand the nation's stock of physical assets—houses, factories, mines, railways, telephone systems, power installations, stores, schools, hospitals and the machinery and equipment necessary to produce goods and services. Government-owned assets such as roads, canals, harbour installations, office buildings and defence structures are included. Excluded are expenditures made for the purchase of defence equipment, the acquisition of land and existing buildings and for the accumulation of inventories.

Capital expenditures have played a very significant role in Canada's post-war growth. From 1946 to 1955 the combined total of new private and public investment in durable assets amounted to over \$42,000,000,000. In each successive year during the period, except 1950 and 1954, a larger share of the national output was taken up by the investment program. In 1946 the share was 14.2 p.c., in 1955, 23.5 p.c., and for the whole period it was over 21 p.c.

## Private and Public Capital Expenditures, 1946-56

NOTE.—1946-54 figures are actual expenditures, 1955 figures are preliminary and 1956 figures are forecasts as of January 1956.

Year	Construction	Machinery and Equipment	Total	Percentage of Gross National Product
	\$'000,000	\$'000,000	\$'000,000	
1946.....	1,074	629	1,703	14.2
1947.....	1,424	1,065	2,489	18.1
1948.....	1,877	1,298	3,175	20.3
1949 <sup>1</sup> .....	2,124	1,378	3,502	21.3
1950.....	2,366	1,449	3,815	21.0
1951.....	2,735	1,842	4,577	21.3
1952.....	3,263	2,022	5,285	22.7
1953.....	3,665	2,176	5,841	23.9
1954.....	3,680	1,940	5,620	23.3
1955.....	4,273	1,957	6,230	23.5
1956.....	5,162	2,367	7,529	—

<sup>1</sup> Newfoundland included from 1949.

The preliminary figures for 1955 and the forecast intentions for 1956 (as of January 1956) show a continued upward trend, after the pause in 1954 when capital expenditure declined slightly. A good part of the 1955 increase



was attributable to high expenditures for home-building which comprised almost one-quarter of total capital investment. Mineral and forest products were also very active and institutions and governments increased their capital outlays. Most of the increase in 1955 went for new construction, although expenditures on machinery and equipment were also higher.

The forecast capital expenditures for 1956 reveal that increases are intended throughout all sectors of the economy with the exception of the construction industry and forestry. The most significant expansions are forecast for the utility and manufacturing sectors.

### *Private and Public Capital Expenditures, by Sector, 1954-56*

NOTE.—1954 figures are actual expenditures, 1955 figures are preliminary and 1956 figures are forecasts as of January 1956.

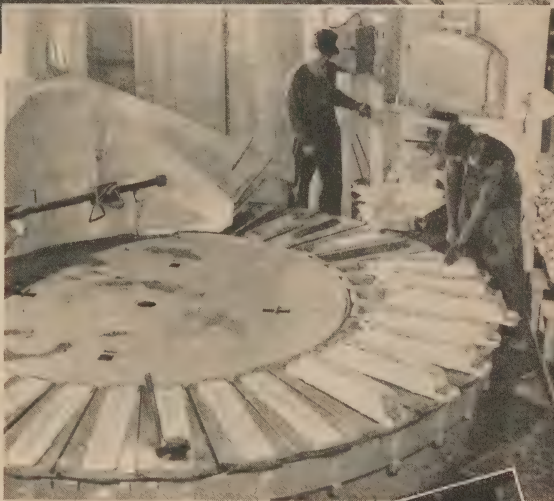
Sector and Year	Construction	Machinery and Equipment	Total
	\$'000,000	\$'000,000	\$'000,000
Agriculture and fishing.....1954	78	310	388
.....1955	80	344	424
.....1956	83	344	427
Forestry.....1954	26	20	46
.....1955	35	27	62
.....1956	36	24	60
Mining, quarrying and oil wells.....1954	184	94	278
.....1955	220	81	301
.....1956	300	124	424
Manufacturing.....1954	288	534	822
.....1955	345	594	939
.....1956	462	842	1,304
Utilities.....1954	610	514	1,124
.....1955	600	441	1,041
.....1956	1,002	580	1,582
Construction industry.....1954	9	88	97
.....1955	11	96	107
.....1956	10	76	86
Housing.....1954	1,178	—	1,178
.....1955	1,496	—	1,496
.....1956	1,574	—	1,574
Trade—wholesale and retail.....1954	204	164	368
.....1955	193	157	350
.....1956	214	156	370
Finance, insurance and real estate.....1954	90	17	107
.....1955	84	18	102
.....1956	92	18	110
Commercial services.....1954	25	82	107
.....1955	33	93	126
.....1956	46	90	136
Institutional services.....1954	296	41	337
.....1955	370	39	409
.....1956	402	45	447
Government departments.....1954	692	76	768
.....1955	806	67	873
.....1956	941	68	1,009
<b>Totals.....1954</b>	<b>3,680</b>	<b>1,940</b>	<b>5,620</b>
<b>.....1955</b>	<b>4,273</b>	<b>1,957</b>	<b>6,230</b>
<b>.....1956</b>	<b>5,162</b>	<b>2,367</b>	<b>7,529</b>

### *Construction Activity*

Construction activity in Canada was greater in 1955 than ever before. In that year, an estimated 525,000 full-time workers were employed to carry out the construction program and their remuneration amounted to \$1,760,000,000. The materials used cost about \$2,300,000,000.



Demand for aluminum both from its traditional markets and from new areas continues upward and Canada's productive capacity is growing to meet it. In 1955 an estimated 560,000 tons were produced in five smelters—the plant at Arvida, Que. (above), is the largest in the world. Expansion programs now under way at Kitimat, B.C., and Isle Maligne, Que., will add 262,000 tons annually to capacity by 1959. Ingots are shipped from the smelter to other plants for further processing and manufacture into finished commodities.



All branches of the industry were active during the year and increased in value over 1954. Residential construction, valued at an estimated \$1,512,000,000, recorded the greatest increase. In the engineering categories, the advance in the construction of gas and oil facilities was most prominent, followed by road building and marine construction.

The summary statistics in the following tables are based on reports received from organizations paying for work done by contractors as well as work done by their own labour forces. Although derived from the same source as capital expenditure figures, these data, for the year 1955, are based on earlier information. The portion of the increase resulting from higher prices is indicated by the calculation of value on the 1949 dollar base.

### Value of Construction Work Performed, Current and Constant (1949) Dollars, 1947-55

(Millions of dollars)

NOTE.—1947-53 figures are actual, 1954 figures are preliminary and 1955 figures are forecasts as of January 1955.

Year	New		Repair		Total	
	Current	Constant	Current	Constant	Current	Constant
1947.....	1,424	1,681	592	696	2,016	2,377
1948.....	1,877	1,947	694	720	2,571	2,667
1949 <sup>1</sup> .....	2,124	2,124	732	732	2,856	2,856
1950.....	2,366	2,247	766	727	3,132	2,974
1951.....	2,734	2,308	927	783	3,661	3,091
1952.....	3,282	2,625	916	732	4,198	3,357
1953.....	3,666	2,847	974	755	4,640	3,602
1954.....	3,696	2,871	994	769	4,690	3,640
1955.....	4,063	—	996	—	5,059	—

<sup>1</sup> Newfoundland included from 1949.

### Value of New and Repair Construction Work Performed, 1953-55

NOTE.—1953 figures are actual, 1954 figures are preliminary and 1955 figures are forecasts as of January 1955.

Type of Construction	1953		1954		1955	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$'000,000		\$'000,000		\$'000,000	
<b>Building.....</b>	<b>2,812</b>	<b>60.6</b>	<b>2,892</b>	<b>61.7</b>	<b>3,111</b>	<b>61.5</b>
Residential.....	1,297	28.0	1,391	29.7	1,512	29.9
Industrial.....	402	8.7	352	7.5	378	7.5
Commercial.....	502	10.8	541	11.5	544	10.8
Institutional.....	343	7.4	368	7.8	432	8.5
Other.....	268	5.8	240	5.1	246	4.9
<b>Engineering.....</b>	<b>1,828</b>	<b>39.4</b>	<b>1,798</b>	<b>38.3</b>	<b>1,948</b>	<b>38.5</b>
Road, highway and aero-						
drome construction....	467	10.1	470	10.0	510	10.1
Waterworks and sewage						
systems.....	135	2.9	142	3.0	154	3.0
Dams and irrigation....	66	1.4	42	0.9	42	0.8
Electric power construc-						
tion.....	338	7.3	358	7.6	372	7.4
Railway, telephone and						
telegraph construction.	317	6.8	286	6.1	294	5.8
Gas and oil facilities....	253	5.5	263	5.6	323	6.4
Marine construction....	76	1.6	81	1.7	114	2.3
Other engineering.....	176	3.8	156	3.3	138	2.7
<b>Totals, Construction</b>	<b>4,640</b>	<b>100.0</b>	<b>4,690</b>	<b>100.0</b>	<b>5,059</b>	<b>100.0</b>



## Summary Statistics of Construction Activity, 1953-55

NOTE.—1953 figures are actual, 1954 figures are preliminary and 1955 figures are forecasts as of January 1955.

Province or Contractor and Year	Average Employees	Salaries and Wages Paid	Cost of Materials Used	Value of Work Performed
	No.	\$'000	\$'000	\$'000
Newfoundland.....	1953 8,973	27,623	30,298	68,118
	1954 8,181	24,363	26,829	60,706
	1955 9,908	30,280	32,517	74,798
Prince Edward Island.....	1953 2,007	4,211	7,398	14,222
	1954 1,808	3,939	7,917	14,535
	1955 2,010	4,452	8,768	16,221
Nova Scotia.....	1953 19,898	50,985	68,550	141,184
	1954 18,462	48,657	66,639	137,178
	1955 18,525	50,121	70,036	144,206
New Brunswick.....	1953 15,338	37,110	52,775	105,227
	1954 16,034	38,967	55,476	110,822
	1955 19,749	48,447	72,660	144,406
Quebec.....	1953 133,598	398,134	537,622	1,124,040
	1954 131,431	400,230	539,748	1,131,852
	1955 134,287	415,913	566,324	1,183,706
Ontario.....	1953 171,638	558,757	744,621	1,597,331
	1954 181,695	610,115	809,308	1,740,030
	1955 193,600	664,706	889,990	1,909,917
Manitoba.....	1953 28,894	79,369	122,620	245,760
	1954 26,634	75,544	118,102	235,864
	1955 26,106	75,556	115,738	233,292
Saskatchewan.....	1953 25,187	76,390	114,996	235,195
	1954 28,299	88,769	133,147	273,662
	1955 25,655	80,830	119,339	245,517
Alberta.....	1953 50,184	177,422	264,628	556,008
	1954 46,953	170,175	252,653	534,119
	1955 50,238	186,001	277,548	586,257
British Columbia.....	1953 53,780	216,610	242,105	552,560
	1954 44,232	177,732	200,217	450,931
	1955 49,586	203,565	230,815	520,618
<b>Totals.....</b>	<b>1953 509,497</b>	<b>1,626,611</b>	<b>2,185,613</b>	<b>4,639,645</b>
	<b>1954 503,729</b>	<b>1,638,491</b>	<b>2,210,036</b>	<b>4,689,699</b>
	<b>1955 529,664</b>	<b>1,759,871</b>	<b>2,383,735</b>	<b>5,058,938</b>
Contractors.....	1953 317,326	1,085,667	1,588,109	3,358,410
	1954 318,224	1,097,811	1,619,828	3,416,452
	1955 348,945	1,221,501	1,796,053	3,791,545
Utilities.....	1953 79,870	233,692	263,128	540,341
	1954 75,713	233,837	261,681	543,680
	1955 70,804	225,423	256,695	528,372
Governments.....	1953 56,640	148,278	131,529	318,278
	1954 58,596	155,733	137,460	330,176
	1955 60,256	163,131	143,601	345,390
Others.....	1953 55,661	158,974	202,847	422,616
	1954 51,196	151,110	191,067	399,391
	1955 49,659	149,816	187,386	393,631

## Housing

Most of the post-war population increase in Canada has been located in urban centres and has been accompanied by a concentration of house-building activity in these centres. Of the total increase in the dwelling stock of 800,000 units since the end of the War, 69 p.c. have been in urban centres of over 5,000 population and 51 p.c. in thirteen metropolitan areas.

This pattern continued in 1955 when the numbers of dwellings started and completed, at 138,000 and 128,000, respectively, exceeded the activity of any previous year. Of the 138,000 dwellings started, 57 p.c. were in

metropolitan areas and 77 p.c. in urban areas. Many of the dwellings started in areas defined as rural were situated close to the larger urban centres.

### *New Dwelling Units Started, Completed and Under Construction, by Province, 1954 and 1955*

Province	1954			1955		
	Starts	Com- pletions	Under Construc- tion Dec. 31	Starts	Com- pletions	Under Construc- tion Dec. 31
	No.	No.	No.	No.	No.	No.
Newfoundland.....	1,345	1,160	2,906	1,613	1,284	3,057
Prince Edward Island.....	198	188	87	214	199	93
Nova Scotia.....	2,311	2,496	1,503	2,946	2,611	1,595
New Brunswick.....	2,228	1,415	1,369	2,986	2,562	1,758
Quebec.....	29,958	26,182	16,629	39,852	34,866	21,812
Ontario.....	46,382	41,085	27,941	53,456	51,351	30,055
Manitoba.....	5,260	5,107	2,796	6,705	5,873	3,564
Saskatchewan.....	4,713	4,889	2,545	4,348	4,278	2,258
Alberta.....	11,529	10,285	6,442	10,542	10,494	6,381
British Columbia.....	9,603	9,158	6,423	15,614	14,034	9,143
<b>Canada.....</b>	<b>113,527</b>	<b>101,965</b>	<b>68,641</b>	<b>138,276</b>	<b>127,552</b>	<b>79,716</b>

### *New Dwelling Units Completed, by Type and Metropolitan Area, 1951-55*

Type and Area	1951	1952	1953	1954	1955
Type	No.	No.	No.	No.	No.
<b>New Construction.....</b>	<b>81,310</b>	<b>73,087</b>	<b>96,839</b>	<b>101,965</b>	<b>127,552</b>
One-family detached.....	60,366	55,967	68,916	71,760	90,292
Two-family detached.....	7,568	5,314	7,714	6,098	8,278
Row or terrace.....	585	99	372	1,065	1,547
Apartments.....	12,791	11,707	19,837	23,042	27,435
<b>Conversions.....</b>	<b>3,500</b>	<b>3,215</b>	<b>3,824</b>	<b>4,373</b>	<b>4,340</b>
<b>Totals<sup>1</sup>.....</b>	<b>84,810</b>	<b>76,302</b>	<b>100,663</b>	<b>106,338</b>	<b>131,892</b>
<b>Metropolitan Area</b>					
St. John's, Nfld.....	326	402	585	451	435
Halifax, N.S.....	620	636	1,241	1,360	1,275
Saint John, N.B.....	98	211	273	273	295
Quebec, Que.....	1,045	1,056	1,580	2,380	2,769
Montreal, Que.....	16,316	11,500	17,833	16,191	19,923
Ottawa, Ont.....	2,641	2,296	2,862	3,262	3,549
Toronto, Ont.....	13,026	9,576	9,460	16,252	22,016
Hamilton, Ont.....	1,757	1,877	2,961	2,593	2,932
London, Ont.....	1,261	1,358	1,355	1,297	1,356
Windsor, Ont.....	940	818	940	1,722	982
Winnipeg, Man.....	2,127	2,088	3,089	3,602	4,181
Vancouver, B.C.....	4,340	4,249	5,913	6,796	8,209
Victoria, B.C.....	844	715	944	1,065	1,421
<b>Totals, Metropolitan Areas<sup>2</sup>....</b>	<b>45,341</b>	<b>36,782</b>	<b>49,036</b>	<b>57,244</b>	<b>69,343</b>

<sup>1</sup> Exclusive of the Yukon and Northwest Territories.

<sup>2</sup> New construction only.

There was a considerable increase in starts of single-family dwellings in 1955 as compared with 1954 and a large part of the increase was financed under the new National Housing Act; 1955 was the first full year of the operation of the Act with its provisions for easier terms to home-owner borrowers in respect of lower down-payment requirements and a longer period of loan-payment. The Act also provided for the participation of the chartered banks in mortgage lending and those institutions played an important role in the

supply of a record volume of funds for mortgage loans in 1955. The effect of these provisions was to raise the proportion of dwellings started under the National Housing Act from 38 p.c. in 1954 to 50 p.c. in 1955.

Most of the dwellings started in 1955 were privately initiated, only 2,100 units being built directly by the Federal Government. Of the privately initiated dwellings started, 49 p.c. were financed with some form of government assistance such as mortgage loans or insurance of such loans; in 1954 the proportion was 42 p.c.

*Net Loans Approved under the National Housing Acts, by Province, 1954 and 1955*

Province or Territory	1954			1955		
	Loans	Dwellings	Amount	Loans	Dwellings	Amount
	No.	No.	\$'000	No.	No.	\$'000
Newfoundland.....	127	166	1,665	343	344	3,560
Prince Edward Island.....	16	16	154	31	33	311
Nova Scotia.....	480	746	6,075	656	778	6,869
New Brunswick.....	375	391	3,372	496	667	5,390
Quebec.....	6,975	9,057	81,128	8,089	10,876	97,899
Ontario.....	20,423	26,170	241,412	29,538	33,498	326,657
Manitoba.....	1,913	2,540	21,813	3,006	3,403	29,722
Saskatchewan.....	884	1,040	9,152	1,674	1,982	17,010
Alberta.....	4,500	5,649	49,321	6,499	7,057	64,766
British Columbia.....	3,882	4,344	39,418	5,813	6,694	63,091
Northwest Territories.....	—	—	—	1	1	9
Yukon Territory.....	—	—	—	3	3	28
<b>Canada.....</b>	<b>39,575</b>	<b>50,119</b>	<b>453,510</b>	<b>56,149</b>	<b>65,336</b>	<b>615,312</b>

*Shannon Park in suburban Halifax houses 521 families of men serving in the Royal Canadian Navy. From 1949 to 1955, the Department of National Defence, through the Central Mortgage and Housing Corporation, constructed or had under construction at many points across Canada, 15,487 housing units for members of the three Armed Services.*







## THE BILLION-DOLLAR ST. LAWRENCE SEAWAY AND POWER PROJECT TAKES FORM

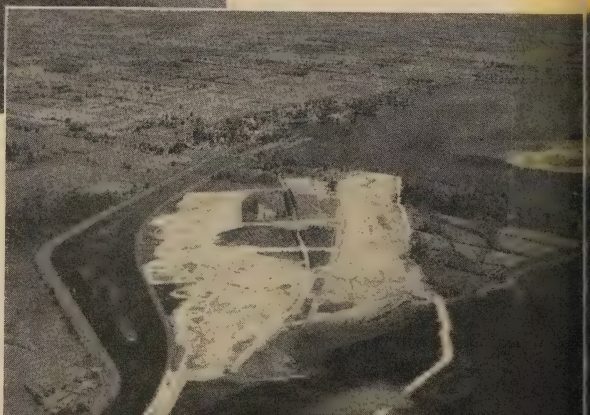
The world's major construction job, on which Canada and the United States are working together, is changing the face of the first transportation route into the heart of the North American Continent. The St. Lawrence waterway has seen many improvements before necessity demanded, but the present gigantic undertaking will remove all the bottlenecks of the now out-moded facilities between Montreal and Prescott which, with the deepening of channels between Lakes Ontario and Erie, will permit ships of 25-foot draught to move easily from the sea to the Head of the Lakes. By the opening of the navigation season of 1959, Canada's St. Lawrence Seaway Authority and United States' Saint Lawrence Seaway Corporation will have brought a long-awaited dream to realization.

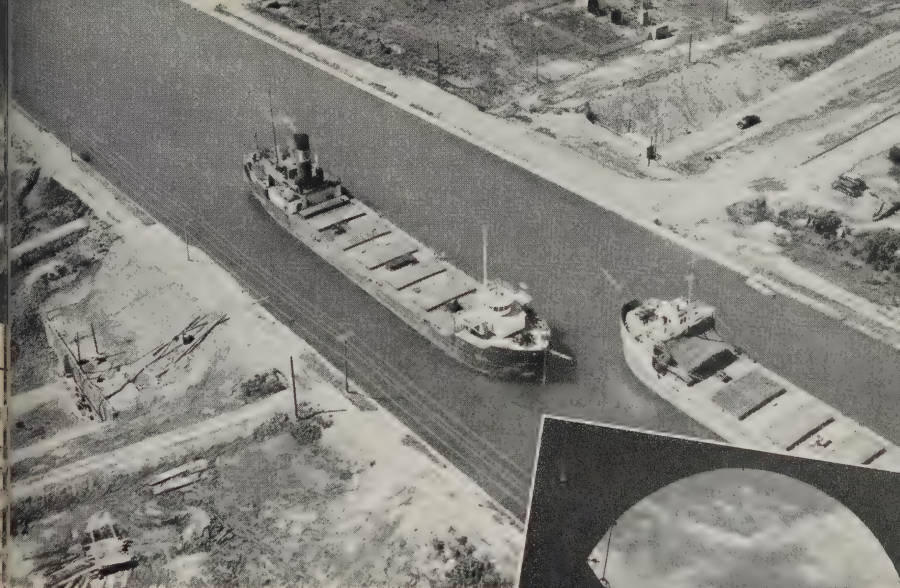
At the same time, a tremendous pace has been set by The Hydro-Electric Power Commission of Ontario and the Power Authority of the State of New York in the work of harnessing the power potential of the 45-mile-long International Rapids Section of the St. Lawrence River. This vast undertaking—involving not only the building of two powerhouses capable of developing 2,200,000 h.p. of electricity and two great control dams, but also extensive channel enlargements and the relocation of roads, railways and towns—is scheduled for initial operation in the summer of 1958 and completion by 1960.



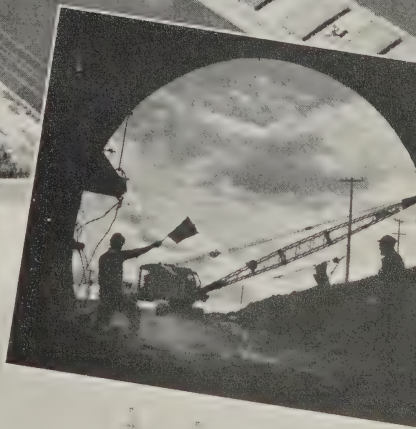
The Seaway project calls for the construction of a ten-mile canal with two locks and considerable channel enlargement extending from deep water in Montreal Harbour to Lake St. Louis, as well as the elevation of the Jacques-Cartier and Victoria Bridges. A cofferdam in the Lachine Section holds back the water of the river while construction work is in progress.

At Iroquois in the International Section a new canal is being cut across the point and cofferdams protect the upstream part of the work. On the far right is Point Rockway, N.Y., where the New York Power Authority is building the Iroquois control dam. A lock will pass ships by this dam.





Two steel tunnels have been constructed by Ontario Hydro under the Cornwall canal so that ships may continue their journeys above while men and materials pass below to the powerhouse site on Barnhart Island.



On the dewatered side of this steel cell cofferdam, the excavations for the Ontario Hydro powerhouse are in progress.



The town of Iroquois is the first community to feel the impressive impact of the seaway and power project as homes are moved a mile and a half to the north. Old houses look trim and substantial in their new setting.





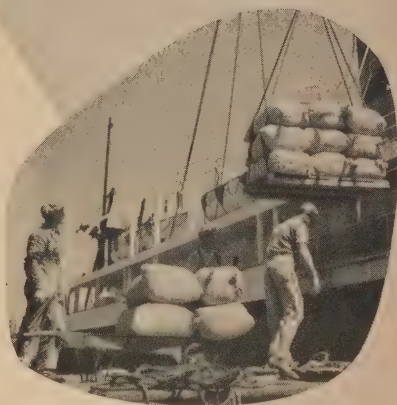
George Hunter

*Montreal Harbour.*





# TRADE and TRANSPORT



*Domestic Trade*

*Foreign Trade*

*Transportation and  
Communications*

*Banking and Insurance*



# Domestic Trade

**D**OMESTIC trade in its widest sense includes the flow of goods from importer, manufacturer or producer through all the phases of distribution to the ultimate domestic consumer. Combined with this distribution of goods are all the necessary attendant services of transportation, storage, credit, etc. The field of services can also be broadened to include professional and personal services, theatres and sports, all of which account for some measure of consumer expenditure. A detailed review of the whole subject is not possible in the limited space available and only current statistics on the distributive trades are therefore given here, followed by brief data on prices which are an integral part of wholesale and retail sales.

## *Distribution Trends*

Statistics on the distribution of goods at the wholesale and retail levels are available from 1930, when the first complete census of domestic trade was taken. Since that year, population growth and increasing buying power have resulted in an increase in retail sales from \$2,740,105,200 to \$11,959,153,000 in 1954. These dollar sales have not been adjusted for price increases during the period so that it is not possible to estimate the increase in the actual volume of retail trade.

One of the most apparent changes in the retail trade picture during the past twenty years is the increase in the share of business done by chain stores, an increase that has been gathering momentum in recent years. In measuring the changeover, motor-vehicle sales have been excluded from the calculations because of the tremendous increase in this type of non-chain retailing to a position second only to the sales of grocery and meat stores. In other lines of retailing, chain stores accounted for 18.8 p.c. of the total sales in 1930, 18.7 p.c. in 1935, 20.4 p.c. in 1941, 18.6 p.c. in 1947, 18.9 p.c. in 1950, 19.4 p.c. in 1951, 20.7 p.c. in 1953 and 21.4 p.c. in 1954. This type of distribution is peculiar to certain trades only. Chain store operation represents almost the entire trade of variety stores and is very predominant in the food field where its share of total sales increased from 26.1 p.c. in 1930 to 29.6 p.c. in 1951 and then suddenly advanced to 32.2 p.c., 34.1 p.c. and 38.4 p.c. through 1952 to 1954. This growth is more noticeable in the larger cities and the surge ahead can be attributed largely to the shopping-centre development in suburban areas of those cities. Shoe store chains accounted for 21.1 p.c. of the total shoe store sales in 1930, 34.6 p.c. in 1951 and 37.6 in 1954.

There have been great changes in the direction of consumer spending in the post-war period. Durable goods, which react more quickly to increased industrial activity than non-durables, were in great demand, a fact substantiated by the continuing expansion in the sales of motor-vehicle dealers from a pre-war total of \$293,803,000 in 1939 to \$1,884,174,000 in 1951 and an estimated \$2,283,991,000 in 1953. Price increases account for part of this advance but the numbers of new vehicles sold for the three years were 114,747, 385,648 and 462,526, respectively. A slight recession in the motor-vehicle business in 1954 has been more than offset by greater-than-ever sales volume during the first nine months of 1955. The demand for household goods and

the advent of television are reflected in the sales of appliance dealers which rose from \$119,652,000 in 1947 to an estimated \$279,389,000 in 1954. A large volume of this type of business is also handled by department stores.

A recent trend in the durable goods business is the introduction of the so-called "discount houses". With a certain unbalance of supply and demand for appliances, especially refrigerators, stoves and washing machines, long-established retailers as well as new mass-volume distributors have reduced prices and offered exceptional trade-in allowances or other bonuses to attract customers. This plan of selling has also filtered into the motor-vehicle business in the larger cities. During this period of competition for the consumers' dollar, the non-durable trades have not much more than held their own. Department stores, whose major business is apparel and dry goods, and clothing stores are continually faced with the need for better advertising, sales-promotion plans and more attractive displays to meet the competition.

Credit buying of durable goods has expanded the consumer debt to great volume in recent years. Retail dealers had an estimated \$411,300,000 owing on their books at the end of 1948. At the same date, sales finance companies' accounts outstanding, largely on motor-vehicle purchases, amounted to \$70,451,000 on consumer commodities. By the end of 1954, these totals were, respectively, \$823,700,000 and \$482,645,000. The figures do not include debt incurred for the purchase of goods through personal loan companies, banks, co-operative credit organizations, etc.

A very recent innovation in the distribution of goods in Canada, although not large at present, is that of food provisioners, which involves the sale of a home freezer and the constant replenishing of frozen foods by companies with frozen-food storage facilities and delivery service to the home. Other trends

ineteen fifty-five was the  
ggest year in Canadian  
tail history. A jump in  
personal income, higher  
ages, less unemployment  
and population increase  
combined to produce gen-  
eral consumer confidence  
which was expressed in  
ady spending.







Packaging has given a major assist to the recent revolution in food marketing. The all-purpose cardboard carton, produced in millions to the run, is economical and may be fed into the production line for folding and filling without difficulty.

▲  
Pressman checks the counter on a cutting and creasing press.

High-gloss wet waxing operation used to coat frozen-food cartons. ▶



in distribution are the increasing amount of night-openings; a slight change toward more Friday shopping which can be attributed to Saturday closing of industry and, especially in summer months, mass exodus from the cities for the weekends; the direct effect on sales of easier credit terms, the revolving charge or permanent budget account plans; some slight trend toward self-serve in other than food stores and the increase in voluntary buying groups (food stores) as a means of meeting the mass buying advantages of the chain stores.

**Current Inter-censal Surveys.**—During the period between the decennial censuses of 1951 and 1961, certain phases of the distributive trades are being measured statistically, some by sample surveys, others on complete coverage.

These cover the important field of retail trade as well as a section of wholesale trade and selected service trades.

*Retail Trade.*—The dollar volume of business carried on by retail stores increased 6 p.c. in 1955 over the previous year to reach an estimated total of \$12,680,000,000.

### Retail Store Sales, by Types of Business and by Province, 1953-55

Type of Business and Province	Sales			Percentage Change 1954-55
	1953	1954 <sup>a</sup>	1955 <sup>a</sup>	
Type of Business	\$'000,000	\$'000,000	\$'000,000	
Grocery and combination stores.....	2,132.6	2,253.6	2,385.8	+ 5.9
Other food and beverage stores.....	1	922.2	926.5	+ 0.5
General stores.....	521.4	515.1	528.2	+ 2.5
Department stores.....	1,024.7	1,060.0	1,140.5	+ 7.6
Variety stores.....	224.3	230.6	244.1	+ 5.9
Motor-vehicle dealers.....	2,284.0	2,058.0	2,344.7	+13.9
Garages and filling stations.....	556.3	559.1	585.6	+ 4.7
Men's clothing stores.....	214.1	204.1	208.5	+ 2.1
Family clothing stores.....	208.8	203.1	206.7	+ 1.8
Women's clothing stores.....	219.1	212.1	212.1	—
Shoe stores.....	121.9	118.7	119.0	+ 0.3
Hardware stores.....	248.5	235.5	239.4	+ 1.7
Lumber and building material dealers.....	417.2	396.3	431.5	+ 8.9
Furniture, radio and appliances stores.....	479.5	470.3	495.0	+ 5.3
Restaurants.....	474.2	455.6	453.8	— 0.4
Fuel dealers.....	224.6	245.2	246.2	+ 0.4
Drug stores.....	282.2	282.5	287.2	+ 1.7
All other stores.....	2,492.4	1,537.2	1,625.2	+ 5.7
<b>Totals.....</b>	<b>12,125.8</b>	<b>11,959.2</b>	<b>12,680.0</b>	<b>+ 6.0</b>
<b>Province</b>				
Atlantic Provinces.....	1,016.1	1,025.6	1,092.8	+ 6.6
Quebec.....	2,756.1	2,761.1	2,891.6	+ 4.7
Ontario.....	4,615.9	4,593.6	4,931.3	+ 7.4
Manitoba.....	677.2	660.8	686.8	+ 3.9
Saskatchewan.....	844.9	755.2	736.8	— 2.4
Alberta.....	987.4	932.5	985.2	+ 5.7
British Columbia (incl. Yukon and N.W.T.)..	1,228.2	1,230.4	1,355.5	+10.2

<sup>1</sup> Included in "all other stores"

adians are dis-  
minating shoppers,  
generally impressed  
with good design and  
reliability in house-  
hold appliances. A  
National Industrial  
Design Committee  
promotes the use of  
Canadian talent in  
designing all types of  
consumer goods and a  
permanent centre has  
been set up at Ottawa  
for displaying designs  
of merit.



The greatest gains occurred in the durable trades—motor-vehicle dealers' sales went up 14 p.c.; lumber and building materials, 9 p.c.; and furniture and household appliance stores, 5 p.c. Sales in Saskatchewan in 1955 followed the decline of 1954 to show a loss of 2.4 p.c. All other provinces recorded increases.

Retail chain store sales increased from \$2,048,228,000 in 1953 to a total of \$2,146,626,000 in 1954. Salaries amounting to \$181,536,000 were paid to the employees of the 8,136 stores. Firms considered as retail chains are those operating four or more retail outlets under the same ownership and carrying on the same or related kinds of business.

### Chain Store Statistics, 1941 and 1946-54

Year	Stores	Retail Sales	Salaries to Store Employees	Stocks on Hand, End of Year		Accounts Outstanding, End of Year
				Store	Warehouse	
	Av. No.	\$'000	\$'000	\$'000	\$'000	\$'000
1941.....	7,622	639,210	57,777	68,619	20,976	38,376
1946.....	6,559	1,014,847	77,474	85,345	37,436	19,643
1947.....	6,716	1,177,323	91,266	105,041	43,546	31,493
1948.....	6,821	1,335,735	107,450	119,132	46,330	40,378
1949.....	6,839	1,420,081	115,903	123,696	46,755	50,001
1950.....	7,155	1,559,693	129,334	159,083	60,501	65,001
1951 <sup>1</sup> .....	7,585	1,726,354	144,792	178,799	59,504	53,169
1952.....	7,660	1,929,750	154,980	176,699	56,821	79,517
1953.....	7,835	2,048,228	171,167	179,704	52,096	91,538
1954.....	8,136	2,146,626	181,536	186,126	59,674	102,748

<sup>1</sup> Newfoundland included from 1951.

Since the end of the War there has been a very large increase in the sale of passenger cars. From 159,205 vehicles in 1947, sales increased to 376,072 in 1955. There has also been a steady advance from year to year in the proportion of car sales financed, increasing from 17.2 p.c. in 1947 to nearly 40 p.c. in 1955.

### New Passenger-Car Sales and Financing, 1953-55

Province	1953			1954			1955		
	Sold		p.c.	Sold		p.c.	Sold		p.c.
	No.	No.		No.	No.		No.	No.	
Atlantic Provinces.....	26,595	12,000	45.1	23,879	10,597	44.3	28,156	11,804	41.9
Quebec.....	70,889	32,615	46.0	65,625	29,734	45.3	79,971	34,484	43.1
Ontario.....	157,058	58,029	36.9	141,188	54,846	38.8	172,601	68,647	39.8
Manitoba.....	19,278	7,419	38.5	15,113	5,210	34.5	16,140	5,008	31.0
Saskatchewan.....	23,909	8,616	36.0	16,143	5,839	36.2	14,136	4,928	34.9
Alberta.....	29,463	15,855	53.8	22,120	10,744	48.6	27,642	12,849	46.5
British Columbia.....	32,829	12,918	39.3	26,478	9,129	34.5	37,426	12,301	32.9
Totals.....	360,021	147,452	41.0	310,546	126,099	40.6	376,072	150,021	39.9

In recent years there has been a large increase in all retail instalment-sales financing. Some of this increase has resulted from the upward trend in prices, but the greater part is accounted for by more sales of the classes of goods shown in the following table.

Sales finance companies did not buy as much trade paper in 1954 as in 1953 or 1952. In 1953 the figure stood at \$943,000,000, compared with



the famous Chateau  
aurier Hotel, an Ot-  
awa landmark since  
1912.



\$793,000,000 in 1954. Balances outstanding were down to \$647,000,000, compared with \$697,000,000 in 1953. In 1952, trade paper purchased amounted to \$819,000,000 and balances were \$540,000,000.

*Sales Financing by Class of Goods and Province,  
1941, 1951 and 1954*

Item	Paper Purchased			Balances Outstanding (Year end)		
	1941	1951	1954	1941	1951	1954
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>Class of Goods</b>						
<b>Consumer Goods</b> .....	<b>77</b>	<b>299</b>	<b>619</b>	<b>49</b>	<b>186</b>	<b>483</b>
New passenger cars.....	23	114	231	2	80	193
Used passenger cars.....	44	141	269	2	80	195
Radio and television.....	2	5	43	2	3	35
Household appliances.....	5	15	44	2	9	36
Furniture.....	1	4	11	2	3	9
Other.....	3	20	21	2	11	15
<b>Commercial and Industrial</b> .....	<b>23</b>	<b>168</b>	<b>174</b>	<b>16</b>	<b>127</b>	<b>164</b>
New commercial vehicles.....	11	82	61	2	64	63
Used commercial vehicles.....	7	46	50	2	31	41
Other.....	5	40	63	2	32	60
<b>Totals, Retail Financing</b> .....	<b>100</b>	<b>467</b>	<b>793</b>	<b>65</b>	<b>313</b>	<b>647</b>
<b>Province</b>						
Atlantic Provinces.....	7	34	67	4	23	54
Quebec.....	16	102	181	10	71	145
Ontario.....	48	177	327	30	114	258
Manitoba.....	5	24	31	3	16	27
Saskatchewan.....	6	29	36	5	20	33
Alberta.....	9	55	85	6	39	76
British Columbia.....	9	46	66	7	30	54

<sup>1</sup> Included in "other".

<sup>2</sup> Not available.

*Services.*—The service segment of the Census of Distribution covers those establishments whose main activity is the rendering of service, including theatres, bowling alleys, dry-cleaning plants, hotels, service garages, taxis operating from stands, and advertising agencies. Only certain activities are covered here.

Power laundries and dry-cleaning and dyeing plants are among the most important of the personal services. It is evident from the following figures that the increase in the number of power laundries in operation has not kept pace with the increase in dry-cleaning and dyeing plants since 1951. Costs of operation in both services are heavily weighted with salaries and wages, which for laundries amount to over 50 p.c. of the total value of work done and, for cleaning and dyeing plants, slightly below that ratio.

### *Power Laundries, Dry-Cleaning and Dyeing Plants, 1941, 1951 and 1954*

Year	Plants	Employees	Salaries and Wages	Cost of Materials	Value of Work Performed
Power Laundries					
	No.	No.	\$	\$	\$
1941.....	237	11,844	10,120,662	2,348,740	19,816,895
1951 <sup>1</sup> .....	317	14,079	22,248,517	<sup>2</sup>	44,053,442
1954.....	299	13,754	26,635,646	4,665,671	50,513,242
Dry-Cleaning and Dyeing Plants					
	No.	No.	\$	\$	\$
1941.....	363	6,554	6,125,635	1,433,790	12,678,275
1951 <sup>1</sup> .....	981	13,933	23,850,119	<sup>2</sup>	52,798,415
1954.....	1,107	15,485	31,512,711	7,535,432	67,222,831

<sup>1</sup> Newfoundland included from 1951.

<sup>2</sup> Not available.

In the amusement group, theatres are of main importance. Recently the effect of the widespread distribution of television sets throughout the country is being felt by motion-picture operators. There were 83 fewer theatres and halls exhibiting motion pictures in 1954 than in 1953. The greatest change occurred in the number of halls serviced by itinerant operators—there were 147 fewer of these in 1954 than in 1953 and community enterprises decreased by 24. Although there were 32 more regular theatres in operation in 1954, their receipts were down by 3·8 p.c. and their paid admissions by 9·4 p.c. Drive-in theatres alone increased in number, receipts and paid admissions as compared with 1953.

### *Motion-Picture Theatre Statistics, 1954*

Item	Regular Theatres	Drive-in Theatres	Community Enterprises	Halls Serviced by Itinerant Operators	Total
Theatres and halls.....No.	1,938	230	645	658	3,471
Receipts (excluding taxes)... \$	97,012,140	6,316,947	1,800,794	385,682	105,515,563
Amusement taxes..... \$	12,098,922	721,630	128,515	26,189	12,975,256
Paid admissions.....No.	218,508,653	12,380,246	5,269,925	1,106,070	237,264,894

the suburban shopping centre, with its variety of stores and its convenience with regard to location and parking, is taking a greater and greater share of the casual retail business away from congested downtown areas.

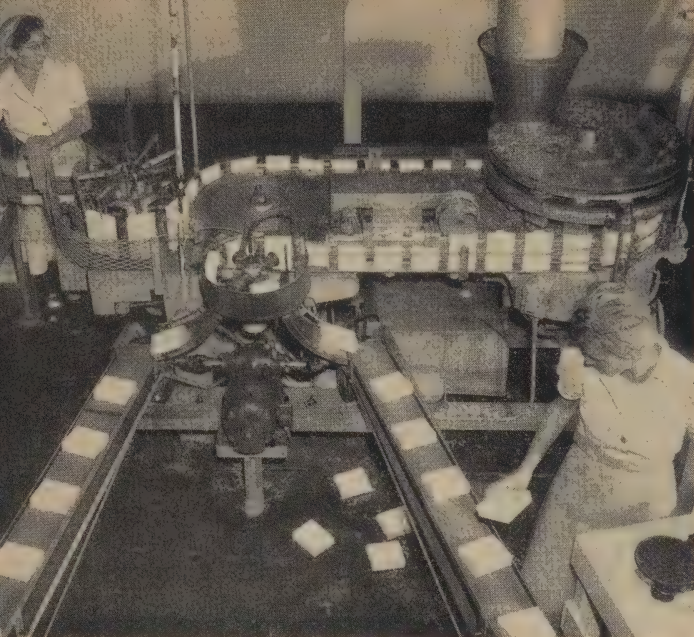


Advertising agencies head the list of business services. The total gross revenue of advertising agencies, which is revenue from commissionable billings, market research and other fees, was \$10,091,772 in 1947 compared with \$24,579,169 in 1954. Annual commissionable billings, which represent approximately 99 p.c. of agency business, more than doubled in the intervening years. This increase and the distribution of advertising expenditure through agencies is shown in the table on p. 240.

Credit accounts outstanding have shown a gradual and consistent rise over the past several years, more than paralleling the general trend of sales. In 1955, retail stores transacted about 11 p.c. more business on credit plans than in 1954, while their total trade, cash and credit, increased 6 p.c.







Sales of frozen food vegetables, meats and fruits—are expected to skyrocket from the present rate of \$10,000,000 to \$100,000,000 within the next five years. Lethbridge plant supplies 80 p.c. of quick-frozen vegetables consumed in the Provinces and yet exports 75 p.c. of production to eastern markets.

### Advertising Agency Billings, by Media, 1947, 1951 and 1954

Item	1947	1951	1954
Commissionable billings.....\$	64,422,777	107,461,752	154,467,028
Percentage Distribution—			
Printed media.....	61·8	59·3	56·4
Other visual.....	4·4	5·2	4·5
Mechanical.....	16·3	18·0	17·3
Radio.....	15·8	17·3	15·4
Television.....			5·5
Other.....	1·7	0·2	0·9

### Co-operative Associations

Co-operative enterprise has played and continues to play a considerable role in many aspects of Canada's economic expansion. Co-operatives first became established where private resources were too limited to meet the needs of pioneer life. Sometimes it was the marketing problem that found solution in the type of large-scale co-operatives exemplified in the wheat pools of Western Canada; sometimes it was small local ventures in co-operative processing among fruit-growers or fishermen; sometimes it was consumer co-operatives which, in the face of depression, passed on to their members most of the retail margin in the form of patronage dividends.

Co-operative activity in marketing has, since early in the century, been an integral feature of Canadian agriculture, particularly in the mid-West where wheat-growers formed elevator companies and built or purchased hundreds of local elevators as well as the great terminals at Fort William-Port Arthur and Vancouver through which is handled half of the western

wheat crop. Co-operatives have become progressively prominent also in the marketing of livestock, dairy products, wool and honey as well as in the purchase of farm machinery, feeds, repair parts, motor fuel, etc.

On July 31, 1954, there were in Canada 2,591 marketing, purchasing or service co-operative associations with a membership of 1,400,000. They reported a total business of \$1,016,224,990 for the year ended on that date. The value of farm products marketed was \$733,012,042 which was \$141,700,000 less than for the previous year, a decrease almost completely accounted for by lower grain sales. It is estimated that co-operative associations marketed approximately 30 p.c. of all agricultural products entering commercial trade channels in that year. Sales of merchandise by co-operatives amounted to \$234,583,125, a decrease of \$11,000,000 compared with the previous year. About three-quarters of that amount was represented by farm supplies, food products and dry goods making up the remainder.

In addition to the local co-operatives, 11 co-operative wholesale societies operated in Canada in 1953-54 and reported a total business of \$149,793,818. Sales of farm products by these wholesales amounted to \$51,907,365 and livestock handled on a commission basis to \$25,732,528. Sales of farm supplies and merchandise were \$96,850,083.

In 1954, 86 fishermen's co-operatives, with a membership of 11,700, reported sales of fish amounting to \$14,915,246 and sales of fishermen's supplies at \$2,771,827. Co-operatives providing such services as medical insurance, housing, transportation, electrification, custom grinding and seed cleaning numbered 419 and reported a membership of 187,800. Their revenue from all services rendered was \$12,177,207.

*Credit Unions.*—The growth of the credit union movement in Canada has been quite phenomenal in the past decade. Credit unions are co-operative savings and loan associations with a stated common bond of membership. Their object is to help the members help themselves to financial security and they do it by making savings a community effort and by giving one another low-cost loans. A membership of about 152,000 at the beginning of the War increased to 1,560,000 at the end of 1954 when 3,961 unions with assets of \$533,940,816 were in operation. Loans to members in that year totalled



agricultural co-  
operative at  
St-Joli, Que.

\$218,479,826 and the savings of all credit union members for the same year amounted to \$160,859,262 for shares and to \$349,804,634 for deposits.

## • Prices

**Wholesale Prices.**—As measured by DBS indexes, prices below the retail level have, since the end of the War, exhibited periods of both rapid change and considerable stability. They moved up rapidly following the removal of price controls towards the end of 1945 and between December of that year and December 1947 the general wholesale price index registered an increase of 35.4 p.c. However, during the moderate recession of 1949, the index declined 3.2 p.c. and did not start to move upwards again until shortly before the outbreak of war in Korea. Between April 1950 and the post-war peak reached in July 1951, the index advanced 20.3 p.c. Prices declined slowly over the following three years and in July 1954 the index stood at 217.4 as compared with 243.7 in July 1951. Most of this decline was accounted for by sharp drops in the prices of fibres, textiles and textile products, and animal products. The relative price stability in 1953 and 1954 extended throughout 1955, although the trend changed to a gradual upward movement early in the year. The advance in the index over the twelve months ended December 1955 amounted to 2.8 p.c. The sharpest increase during this period was registered by non-ferrous metals which advanced 17.6 p.c., and the two other groups to show significant increases were wood products, which advanced 5.0 p.c., and iron products 7.2 p.c.

Indexes of both residential and non-residential building material prices showed much the same tendencies during the post-war period as the general wholesale index, although lumber prices moved with considerably greater amplitude.

### *Annual and Monthly General Wholesale and Special-Purpose Price Indexes, 1949-55*

(1935-39=100)

NOTE.—All 1955 indexes and Canadian farm products indexes subsequent to July 1954 are subject to revision.

Period	General Wholesale Prices	Raw and Partly Manufactured	Fully and Chiefly Manufactured	Canadian Farm Products	Residential Building Materials	Non-residential Building Materials (1949=100)
1949.....	198.3	197.1	199.2	228.7	228.0	100.0
1950.....	211.2	212.8	211.0	236.7	242.7	105.0
1951.....	240.2	237.9	242.4	268.6	286.2	118.6
1952.....	226.0	218.7	230.7	250.2	284.8	123.2
1953.....	220.7	207.0	228.8	221.6	282.6	124.4
1954.....	217.0	204.8	224.2	211.8	277.5	121.8
1955—January.....	215.7	205.0	222.1	210.3	278.5	121.1
February.....	217.4	207.6	223.2	210.0	279.1	121.3
March.....	217.4	206.2	224.1	207.0	279.5	121.7
April.....	218.5	210.4	223.5	216.1	280.7	122.0
May.....	217.8	209.5	223.1	216.7	280.8	121.8
June.....	218.7	210.3	224.1	215.5	283.4	122.1
July.....	218.4	210.1	223.7	213.1	284.2	122.3
August.....	219.6	210.7	225.3	204.8	285.5	124.2
September.....	220.9	212.2	226.4	202.7	286.8	125.7
October.....	220.0	210.8	225.7	196.8	286.8	125.9
November.....	220.7	211.3	226.5	196.9	286.7	126.0
December.....	221.4	212.4	226.6	197.1	287.5	126.0



**Consumer Prices.**—The DBS consumer price index is constructed to measure the influence of price change on the cost of living of a representative cross-section of Canadian families. The index budget contains 224 items which were selected on the basis of a 1947-48 survey to represent expenditures made by Canadian urban families with the following characteristics: (1) living in 27 Canadian cities with over 30,000 population; (2) ranging in size from two adults to two adults with four children; (3) with annual incomes during the survey year ranging from \$1,650 to \$4,050.

These items are priced with varying frequency in from 10 to 33 cities, and the average price change of each commodity and service is combined with the average price change of other items, according to the relative importance of purchases on the items as determined from the survey. The index is a measure of price change only and increases or decreases in other factors affecting the cost of living do not influence it.

Retail prices have exhibited a remarkable stability during the past three and a half years. The total consumer price index was 116.0 in June 1952 and 116.9 in December 1955. During that period the monthly indexes varied on only one occasion by as much as 1.6 points. The extent of the price dispersion around the total index may be seen in the following table.

This record of stable prices has been the more remarkable in that it has been accompanied by significant rises in salaries and wages, with a resultant increase in real earnings. Thus the index of actual weekly wages in manufacturing (1949=100) moved from 128.6 in 1952 to 134.5 in 1953, 137.0 in 1954 and 141.9 in November 1955. The corresponding index of real earnings (1949=100), which shows the changing command of salaries and wages over goods and services, moved from 110.4 in 1952 to 116.4 in 1953, 117.9 in 1954 and 121.9 in November 1955.

### Consumer Price Index Numbers, 1949-55

(Av. 1949=100)

Year and Month	Food	Shelter	Clothing	House- hold Oper- ation	Other Commo- dities and Services	Total
1949.....	100.0	100.0	100.0	100.0	100.0	100.0
1950.....	102.6	106.2	99.7	102.4	103.1	102.9
1951.....	117.0	114.4	109.8	113.1	111.5	113.7
1952.....	116.8	120.2	111.8	116.2	116.0	116.5
1953.....	112.6	123.6	110.1	117.0	115.8	115.5
1954.....	112.2	126.5	109.4	117.4	117.4	116.2
1955.....	112.1	129.4	108.0	116.4	118.1	116.4
1955—January.....	112.1	128.4	108.1	117.1	118.2	116.4
February.....	111.5	128.5	108.1	117.1	118.3	116.3
March.....	110.7	128.6	108.0	117.0	118.3	116.0
April.....	111.0	128.7	107.9	116.9	118.2	116.1
May.....	112.3	128.8	107.9	116.4	118.3	116.4
June.....	111.0	129.2	107.8	116.1	117.8	115.9
July.....	111.5	129.6	107.8	115.8	117.7	116.0
August.....	112.4	129.8	107.8	115.8	118.0	116.4
September.....	113.7	130.0	107.8	115.9	117.9	116.8
October.....	113.5	130.2	107.8	116.1	118.1	116.9
November.....	113.0	130.6	107.9	116.5	118.3	116.9
December.....	112.4	131.0	108.5	116.6	118.3	116.9



Fifteen thousand tons of chrome ore from the Philippine Islands being unloaded at Montreal—the largest single shipment of cargo ever to enter that port. Two hundred and forty railway hopper cars were used to move the cargo to a Quebec refractories plant to be used in the manufacture of basic bricks for the production of steel, copper, aluminum and cement.

# Foreign Trade

CANADA's foreign trade set new records in 1955. The value of total trade exceeded the peak of 1953 by 6 p.c. and the volume of trade showed almost as great a gain. Imports increased more rapidly than exports during the year, and the import balance on merchandise trade more than doubled. But exports as well as imports were extremely large and the import balance amounted to only about 4 p.c. of total trade.

## Exports, Imports and Total Trade of Canada, 1950-55

(Millions of Dollars)

Year	Exports			Imports	Total Trade	Balance of Trade
	Domestic Produce	Foreign Produce	Total			
1950.....	3,118.4	38.7	3,157.1	3,174.3	6,331.3	- 17.2
1951.....	3,914.5	48.9	3,963.4	4,084.9	8,048.2	-121.5
1952.....	4,301.1	54.9	4,356.0	4,030.5	8,386.4	+325.5
1953.....	4,117.4	55.2	4,172.6	4,382.8	8,555.4	-210.2
1954.....	3,881.3	65.6	3,946.9	4,093.2	8,040.1	-146.3
1955.....	4,281.8	69.5	4,351.3	4,712.4	9,063.7	-361.1

**International Background.**—Since the initial difficulties of the immediate post-war years were overcome, the world economy has shown considerable long-range improvement notwithstanding a number of cyclical adjustments. General economic development has been widespread and there have been advances in intergovernmental co-operation directed towards a freer and more stable international trade. This trend has manifested itself in the successful functioning of various international organizations in which Canada has participated actively. As a concomitant of these developments and as a result of the considerable improvement in the balance of payments position of most countries, controls over foreign trade and payments have been greatly relaxed throughout much of the world, especially since 1952. Discrimination against dollar imports has been reduced in most of the principal trading countries, although this reduction has to date been largely confined to industrial materials and certain capital goods.

By the time of the outbreak of hostilities in Korea, the period of post-war reconstruction in most of Europe and of reconversion from a wartime to a peacetime economy in North America was over. The Korean boom gave a tremendous fillip to world economic activity; it also had, however, a strong inflationary influence on many internationally traded commodities, especially rubber, tin, wool and some other raw materials. A period of readjustments followed, affecting first the raw-material-producing countries of Southeast Asia, Australasia and Latin America, then the United Kingdom and Western Europe, and finally the United States and Canada. But in 1955 another North American boom was in full swing, expansion in Western Europe (only slightly checked in 1952-53) was continuing at a record pace, the United Kingdom's economy was in its most buoyant post-war state and, except for a few problem



areas, the rest of the free world was also making significant progress. Nevertheless the unresolved problems of agricultural surpluses in such commodities as rice, sugar, cotton and wheat—the latter of particular interest to Canada—were still present, slightly clouding the otherwise bright picture.

The recovery of world trade from the effects of the post-Korean adjustments started in 1953 and continued into 1955. On the basis of preliminary data, it appears that in 1955 world trade was some 6 p.c. greater in value than during the previous peak in 1951, and some 15 p.c. larger in volume terms. The average level of world prices declined steadily from 1951 to 1953 and stabilized thereafter at about 10 p.c. below the 1951 peak.

Canada's share of world trade in the post-war period has fluctuated between 5 p.c. and 6 p.c. In most post-war years only the United States and the United Kingdom conducted a greater foreign trade than Canada. However in 1954 the Federal Republic of Germany, whose trade has made tremendous strides since 1949, regained its pre-war position as the world's third leading trading nation and maintained this rank in 1955. Canada's trade on a per capita basis far exceeds that of most other leading trading countries.

### Leading Countries in World Trade, 1953 and 1954

NOTE.—Countries ranked by total trade and total trade per capita in 1954. Sources of data: Trade—International Monetary Fund; Population—United Nations Statistical Office.

Country	Exports, f.o.b.		Imports, c.i.f.		Total Trade	
	1953	1954	1953	1954	1953	1954
VALUE OF TRADE (Millions of United States Dollars)						
United States.....	15,782 <sup>1</sup>	15,099 <sup>1</sup>	11,834	11,103	27,616 <sup>1</sup>	26,202 <sup>1</sup>
United Kingdom.....	7,525	7,771	9,361	9,462	16,886	17,233
Germany, Federal Republic of....	4,390	5,249	3,771	4,571	8,161	9,820
Canada.....	4,596	4,434	4,824	4,549	9,420	8,983
France.....	3,782	4,189	3,942	4,215	7,724	8,404
Netherlands.....	2,152	2,412	2,383	2,857	4,535	5,269
Belgium and Luxembourg.....	2,251	2,300	2,405	2,535	4,656	4,835
Italy.....	1,507	1,636	2,420	2,401	3,927	4,037
Japan.....	1,275	1,629	2,410	2,399	3,685	4,028
Australia.....	1,977	1,659	1,471	1,869	3,448	3,528
<b>World Trade<sup>2</sup>.....</b>	<b>74,796</b>	<b>77,332</b>	<b>76,443</b>	<b>79,335</b>	<b>151,239</b>	<b>156,667</b>
TRADE PER CAPITA (United States Dollars)						
New Zealand.....	322	326	263	328	585	655
Canada.....	311	292	326	299	637	591
Belgium and Luxembourg.....	248	252	264	278	513	530
Switzerland.....	246	249	241	264	487	513
Netherlands.....	205	227	227	269	432	497
Denmark.....	205	215	229	264	434	479
Norway.....	152	172	272	300	423	472
Sweden.....	206	220	220	246	427	466
Venezuela.....	266	297	164	162	430	459
Hong Kong.....	213	188	301	267	515	456

<sup>1</sup> Includes military aid extended to other countries.  
and eastern European countries not reporting trade currently.

<sup>2</sup> Exclusive of China, USSR,

**Canadian Developments.**—The Canadian economy in the post-war period up to 1950 was characterized by sustained activity stimulated by reconstruction demands, although toward the end of the period the over-all pressure on productive resources slackened. A very sharp increase in output was registered immediately following the outbreak of hostilities in Korea, and the



*Loading lumber aboard a freighter in Vancouver Harbour. Unmanufactured or partly manufactured wood—lumber, laths, shingles, railway ties and other products of the lumber industry—forms about 10 p.c. of the total value of Canada's exports.*

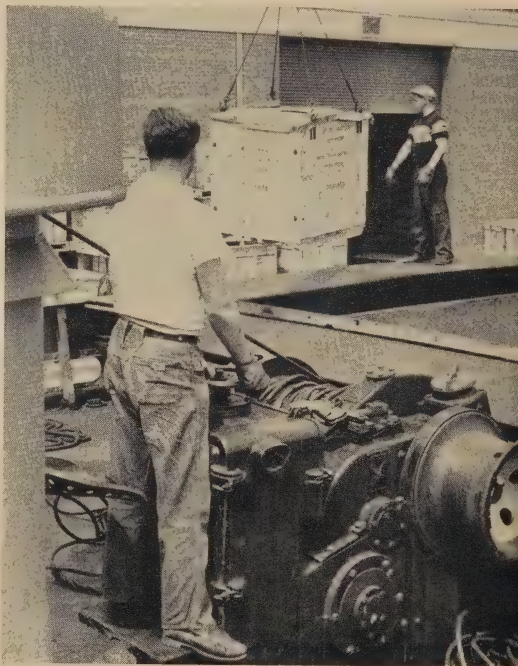
enhanced level of production continued into mid-1953. After the middle of 1953, however, the economies of both the United States and Canada underwent a period of business readjustments lasting for about a year.

Numerous factors contributed to the mild recession in Canada. These included a very poor wheat harvest, moderately reduced defence expenditures, lower investment outlays for new machinery and equipment, some inventory reduction, a lower level of consumer purchases of durable goods and a falling off in exports. However, these factors combined to produce a greater decline in imports than in exports. The impact of recessionary forces was also moderated by a high level of personal expenditure on consumer non-durable goods and services and a renewed upsurge in residential construction. By early 1955 almost all sectors of the economy displayed increasing strength, and during the year a record gross national product was achieved.

Especially significant for the future has been the steady and uninterrupted progress in exploring and developing Canada's natural resources in recent years. To a large extent this development has been sustained by the heavy inflow of United States capital since 1950, which has financed the import balance occurring on merchandise trade in most of these years. Even during the 1953-54 recession productive capacity in such fields as newsprint paper, wood pulp, iron ore and other base metals, crude petroleum and chemicals continued to expand; the rise in exports in 1955 reflects these developments.

**Recent Trade Trends.**—The decline in Canadian exports after 1952 reflected chiefly reduced overseas markets for grains and a sharp contraction in overseas purchases of Canadian automotive products from abnormal peaks. Except for a short period in 1952-53 most other important exports continued to expand, and by the middle of 1954 this growth had reversed the downtrend caused by grains and motor-vehicles. The higher level of exports in 1955 was again owing almost entirely to these other commodities, since grain exports remained close to their low 1954 total, and motor-vehicle exports, though increased, were still far below their earlier peak.

Forest and mineral products made the greatest contribution to the increase of exports in 1955. Exports of newsprint paper and wood pulp continued to expand and those of planks and boards rose by \$60,600,000 (the greatest value gain for any commodity) in response to a sharp increase in home construction in the United States. Exports of most important base metals increased substantially, with the largest gain in iron ore as a result of new capacity and a full year of shipments from new mines in Labrador. Exports of crude petroleum also advanced sharply. Both iron ore and petroleum exports find their chief market in the United States, though overseas exports of the former commodity are also assuming considerable importance.



The sharp drop in imports in 1954 affected most of the leading commodities normally purchased abroad, especially textiles, agricultural implements, and industrial machinery and equipment. Recovery started in the middle of 1954 and by mid-1955 earlier records were being exceeded by a wide margin. The rapid rate of the increase in imports in 1955 has kept pace with the general upswing in the Canadian economy. Especially large increases were registered by automobile parts and fibres and textiles, imports of which had shown above-average declines in 1954. There were also higher purchases of farm and non-farm machinery, aircraft, automobiles, rolling-mill products and electrical apparatus. Almost all of Canada's leading imports shared in



the expansion with the partial exception of coffee, which was depressed by lower prices and market uncertainties in the first half of the year, of anthracite coal, which continued to be reduced by the growing use of oil for home heating, and of pipes, tubes and fittings, which dropped sharply in response to a lull in oil and gas pipeline construction in Canada.

Price movements exercised only a moderate influence on Canadian trade in 1955. Both export and import prices showed some net increase, and the terms of trade ratio rose, slightly moderating the growth of Canada's import balance.

*Summary Trade Statistics, by Quarters, 1954 and 1955*

Period	Value of Trade (\$'000,000)			Price Indexes (1948 = 100)		Volume Indexes (1948 = 100)	
	Total Exports	Im- ports	Trade Balance	Domestic Exports	Im- ports	Domestic Exports	Im- ports
<b>1954</b>							
Jan.-Mar.....	866.3	925.9	-59.6	115.2	109.2	95.5	128.3
Apr.-June.....	1,005.0	1,124.2	-119.2	116.3	110.4	110.6	153.9
July-Sept.....	993.1	1,001.2	-8.1	115.0	110.3	110.4	136.4
Oct.-Dec.....	1,082.5	1,041.9	+40.6	114.5	109.1	121.0	144.2
<b>1955</b>							
Jan.-Mar.....	966.6	990.7	-24.1	115.5	109.7 <sup>p</sup>	107.1	135.8 <sup>p</sup>
Apr.-June.....	1,096.6	1,218.7	-122.1	117.7	110.1 <sup>p</sup>	119.4	166.2 <sup>p</sup>
July-Sept.....	1,133.8	1,216.7	-82.9	118.0	109.8 <sup>p</sup>	122.8	165.9 <sup>p</sup>
Oct.-Dec.....	1,154.3	1,286.3	-132.0	119.1	112.9 <sup>p</sup>	124.1	172.2 <sup>p</sup>

Commodities from many nations are unloaded from ocean-going vessels on Toronto's waterfront. The new Marine Terminal No. 11 is continually filled with carefully guarded consignments on their way to the tremendous market of southern Ontario.



**Leading Trading Partners.**—The United States is by far Canada's leading trading partner. Exports to the United States consist chiefly of industrial materials, such as newsprint paper, lumber and base metals, though fish and farm implements are also of great importance. Imports from that country are chiefly manufactured goods such as machinery, automobile parts and electrical apparatus, though fuels and some agricultural products not available in Canada, such as cotton and citrus fruits, are also significant. Over the past thirty years the importance of the United States as an export market has increased sharply, that country's share in exports having risen from some 40 p.c. of the total to about 60 p.c. The United States' share in imports is greater, though over the same period it has grown only from about 67 p.c. to about 72 p.c. of the total.

The United Kingdom ranks second as both an export market and a source of imports. Principal exports to the United Kingdom include grains, metals and forest products, while imports consist mainly of manufactured goods such as machinery, electrical apparatus and textiles. In contrast with the expansion of trade with the United States, Canadian trade with the United Kingdom has diminished in relative importance over the past thirty years. Exports, though larger in absolute value, have fallen from about 32 p.c. to about 17 p.c. of the total. The contraction of the United Kingdom market for grains, cheese, eggs, cattle, bacon and fish accounted for most of this relative decline. Imports also increased in absolute value over this period, but declined from about 16 p.c. to about 10 p.c. of the total. The drop in the export proportion has been associated with post-war exchange difficulties in the United Kingdom, as well as with other factors, while increasing competition from other suppliers of many manufactured goods coupled with supply difficulties in the United Kingdom has been primarily responsible for this decrease in the proportion of British imports.

Trade with most European countries and with Japan is similar in character to that with the United Kingdom. And, during the past few years, trade with Japan and the Federal Republic of Germany has been becoming of increasing importance to Canada. Manufactured goods are of greater importance in sales to Latin American countries and to many Commonwealth



*Gypsum from a Nova Scotia mine awaiting shipment to manufacturing plants along the Atlantic coast of the United States. Canada is second among the nations in the production of gypsum.*

countries, while imports from these two areas are largely primary products which cannot be efficiently produced in Canada. But the volume of trade with these areas does not change the broad picture set by the exchange of goods with the United States and the United Kingdom.

### *Domestic Exports to Leading Countries, 1951-55*

NOTE.—Countries ranked by value of exports in 1955.

Country	1951	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,297,675	2,306,955	2,418,915	2,317,153	2,559,343
United Kingdom.....	631,461	745,845	665,232	653,408	769,313
Japan.....	72,976	102,603	118,568	96,474	90,893
Germany, Federal Republic of..	37,028 <sup>1</sup>	94,863	83,858	86,899	90,751
Australia.....	49,079	49,697	39,629	45,768	58,482
Union of South Africa.....	52,736	47,852	50,763	39,883	56,026
Belgium and Luxembourg.....	94,457	104,376	69,510	54,987	53,384
Netherlands.....	26,191	41,508	42,382	39,777	47,689
Norway.....	32,198	39,002	37,278	43,813	47,031
France.....	46,538	48,264	32,281	33,799	42,563
Mexico.....	29,880	39,641	28,986	27,359	37,126
Venezuela.....	26,982	35,683	36,485	30,973	30,756
Italy.....	48,763	52,645	33,170	23,844	27,653
Switzerland.....	25,345	26,918	29,833	26,826	25,640
India.....	35,737	55,423	37,187	17,689	24,669
Colombia.....	12,311	13,756	20,146	21,000	22,691
New Zealand.....	21,757	18,844	7,475	14,807	22,344
Philippines.....	15,598	16,045	12,872	15,863	18,136
Cuba.....	20,424	24,181	16,124	17,455	13,910
Jamaica.....	10,213	10,591	12,490	11,552	12,907

<sup>1</sup> Includes Eastern Germany.

### *Imports from Leading Countries, 1951-55*

NOTE.—Countries ranked by value of imports in 1955.

Country	1951	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,812,927	2,976,962	3,221,214	2,961,380	3,452,178
United Kingdom.....	420,985	359,757	453,391	392,472	400,531
Venezuela.....	136,718	135,758	155,147	167,594	187,277
Germany, Federal Republic of...	30,936 <sup>1</sup>	22,629	35,507	44,485	55,603
Japan.....	12,577	13,162	13,629	19,197	36,718
India.....	40,217	26,822	26,627	28,054	35,147
Brazil.....	40,627	35,103	35,047	31,623	30,747
Netherlands Antilles.....	10,809	11,747	8,154	20,582	30,722
Belgium and Luxembourg.....	39,095	33,216	29,082	25,077	29,051
Mexico.....	18,013	23,937	15,785	14,033	28,814
Malaya and Singapore.....	57,980	25,473	21,896	19,586	28,810
Australia.....	46,228	18,712	23,464	24,657	26,295
France.....	23,974	19,117	22,267	22,046	25,016
Colombia.....	13,063	18,004	23,215	24,820	22,220
Netherlands.....	14,010	16,495	22,298	22,562	20,951
Switzerland.....	16,398	16,396	20,437	19,151	19,365
Italy.....	14,217	11,735	14,271	15,006	18,502
British Guiana.....	25,025	23,660	17,800	20,482	18,307
Lebanon.....	16,381 <sup>2</sup>	15,171	19,584	17,413	17,920
Ceylon.....	16,396	12,492	14,461	12,527	15,581

<sup>1</sup> Includes Eastern Germany.

<sup>2</sup> Includes Syria.





*In the Belgian Congo—Canadian flour is made up into bread and rolls in a modern bakery.*

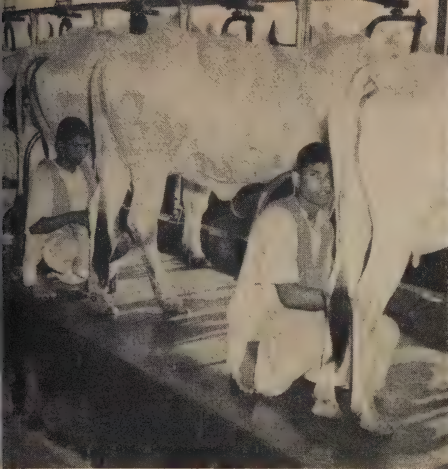


*In Spain—"Codfish from Newfoundland—none better" reads the sign in a Madrid market.*

**Changes in the Structure of Trade.**—Climatic and geophysical factors are reflected in the composition of Canada's foreign trade. Canada has an abundant supply of certain farm, marine and wildlife products such as grains and their products, cattle, meats, fish and furs. But such products of warmer climates as coffee, sugar, citrus fruits, cotton and rubber have to be imported. Minerals are assuming an increasingly important place in Canadian exports. Canada produces most of the world's nickel and asbestos, is one of the leading producers of gold, copper, zinc, lead and uranium, and is in the process of moving into the top ranks of producers of iron ore and petroleum. On the other hand, the total requirements for bauxite, the raw material which is transformed into aluminum by the application of Canadian hydro-electric power, have to be imported as well as a large proportion of the domestic consumption of petroleum and coal. Canada's vast stands of timber, chiefly of softwood species, provide lumber, pulpwood, wood pulp and newsprint for a world market. Only a very limited quantity of wood and wood products needs to be imported, the latter mostly in manufactured form such as books, magazines and newspapers.

In the 1920's farm and marine products jointly constituted almost 60 p.c. of the value of Canadian exports, wheat alone accounting for close to 30 p.c. In the 1950's, however, their share declined to only 30 p.c. while that of forest products increased from about 23 p.c. to 34 p.c. and of minerals from 9 p.c. to 20 p.c. This decrease in the proportion of agricultural exports is associated with possibly transitional but nevertheless difficult problems of surpluses in most exporting and some importing countries, partly resulting from, as well as encouraging, various price support, disposal and import restriction schemes of a generally protectionist nature.

There have been significant changes in the list of Canada's leading exports since the 1920's. Wheat, then in first place, ranked only third in 1955, and such formerly important exports as cheese, bacon, furs, rubber tires and silver are of less significance. New leaders include aluminum, asbestos, zinc,



*In India—The modern Bengal State Dairy Farm is equipped with metal stanchions, water bowls and feed and manure carriers manufactured in Canada.*



*In Germany—The famous German newspaper "Handelsblatt", printed on Canadian newsprint, rolls off the press.*

fresh and frozen fish, fertilizers and non-farm machinery, while such commodities as wood pulp, nickel, copper, barley, wheat flour, farm implements, whisky, pulpwood and lead were among the leading exports in both periods.

The changes in the various components of Canadian imports have been less drastic but nevertheless quite pronounced. The proportion of farm products declined from 25 p.c. of total imports in the 1920's to 15 p.c. and that of textiles from 17 p.c. to 10 p.c. The share of minerals has remained virtually unchanged at about 12 p.c. The share of machinery and other iron and steel products has increased from 25 p.c. to 34 p.c. The proportion of all manufactured goods has increased from 65 p.c. to 73 p.c. of total imports. Canada is today one of the world's largest importers of steel products and other manufactured goods, as well as of fuels.

The list of leading imports also shows fewer changes since the 1920's than is the case with exports. No longer included are such products as anthracite coal, rubber, gasoline and many textile items, while new entries include aircraft, fuel oils, coffee and chemicals. But many of today's chief imports have been leaders for many years, including machinery, crude petroleum, automobile parts, electrical apparatus, steel, bituminous coal, farm implements, cotton and cotton products, passenger automobiles and sugar.



*In Brazil—Technician at the National Cancer Service in Rio de Janeiro examines, through a protective screen, radium needles recently arrived from Canada.*

## Principal Domestic Exports, 1951-55

NOTE.—Commodities ranked by value of exports in 1955.

Commodity	1951	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
Newsprint paper.....	536,372	591,790	619,033	635,670	665,877
Planks and boards.....	312,198	295,949	282,103	324,724	5,313
Wheat.....	441,043	621,292	567,907	375,339	338,216
Wood pulp.....	365,133	291,863	248,675	271,418	297,304
Nickel, primary and semi-fabricated.....	136,689	150,982	162,542	182,154	215,169
Aluminum, primary and semi-fabricated.....	120,853	155,106	173,378	182,392	210,971
Copper, primary and semi-fabricated.....	81,691	100,806	117,351	127,334	163,924
Iron ore.....	18,576	22,333	30,843	39,719	99,814
Asbestos, unmanufactured.....	80,333	86,510	83,973	82,566	94,804
Barley.....	58,822	145,684	136,729	89,363	76,461
Wheat flour.....	113,854	116,055	102,160	88,029	74,442
Farm implements and machinery (except tractors) and parts....	96,873	95,692	67,821	70,819	72,206
Zinc, primary and semi-fabricated.....	83,669	96,283	57,572	58,392	70,558
Whisky.....	54,039	54,254	63,086	59,156	60,862
Fertilizers, chemical.....	35,734	42,293	42,633	42,342	56,296
Fish, fresh and frozen.....	53,363	52,852	51,219	56,650	55,263
Pulpwood.....	68,103	64,820	45,859	45,766	48,655
Lead, primary and semi-fabricated.....	45,290	49,676	37,835	40,530	37,194
Petroleum, crude.....	807	3,452	6,228	6,318	36,253
Machinery (non-farm) and parts	40,271	47,378	37,282	36,676	35,789

## Principal Imports, 1951-55

NOTE.—Commodities ranked by value of imports in 1955.

Commodity	1951	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
Machinery (non-farm) and parts.	328,741	360,969	401,856	380,219	445,875
Automobile parts (except engines)	195,177	190,337	222,284	180,433	246,505
Petroleum, crude and partly refined.....	233,148	210,036	213,094	212,767	229,779
Electrical apparatus, <i>n.o.p.</i> .....	120,101	139,567	198,275	207,539	226,715
Aircraft and parts (except engines).....	41,438	95,212	111,803	100,397	138,091
Rolling mill products (steel).....	173,127	143,133	124,813	97,563	129,679
Tractors and parts.....	125,562	119,253	126,354	82,814	115,375
Engines, internal combustion, and parts.....	80,314	126,332	107,736	84,914	100,917
Automobiles, passenger.....	56,632	49,484	79,454	60,846	83,726
Fuel oils.....	58,389	64,908	65,151	70,921	77,754
Coal, bituminous.....	115,275	99,571	94,680	70,445	74,453
Non-commercial items.....	32,544	47,095	60,923	56,763	72,939
Tourist purchases.....	47,071	66,682	73,840	68,767	71,467
Farm implements and machinery (except tractors) and parts....	69,529	78,044	82,795	60,351	62,874
Cotton, raw.....	94,315	65,956	55,494	52,441	61,031
Principal chemicals (except acids) <i>n.o.p.</i> .....	43,940	49,824	54,505	46,193	57,677
Coffee, green.....	48,438	50,775	57,595	64,214	57,010
Cotton fabrics.....	54,984	53,248	55,906	46,012	53,400
Paperboard, paper and products.	34,831	29,921	39,208	43,558	52,690
Sugar, unrefined.....	77,100	59,546	47,491	51,519	52,312



The Department of Trade and Commerce is in business to promote the selling of Canadian products throughout the world and one of the most effective methods used is the display of Canadian goods at trade fairs and exhibitions abroad.

Twenty-six Canadian firms were represented at the Royal Netherlands Industries Fair held at Utrecht in March 1955.



Canadian furs and fashions appeared in glamorous display at trade fairs in Brussels, Milan and Paris in the summer of 1955.



Chemical and plastic products made in Canada on exhibit at the British Plastics Exhibition in London, June 1955.

## *The Canadian Balance of International Payments*

In addition to foreign merchandise trade, Canada has a variety of other current exchanges of services and capital movements with other countries. These are covered in statements of the Canadian balance of international payments, which show the direction and extent of movements of capital between Canada and other countries as well as the receipt and expenditure of all types of income abroad.

Canada is in the forefront of countries attracting foreign investment capital and is also, in relative terms, a major investor abroad. The importance of foreign trade in the Canadian economy and of foreign capital in financing some parts of recent Canadian development are among the factors that give the balance of international payments particular significance for the Canadian nation.

After a series of surpluses extending from the early 1930's on account of transactions in goods and services with other countries, Canada in recent years has tended to incur substantial deficits which reflect net inflows of capital into Canada. In each of 1953 and 1954 the deficit exceeded \$400,000,000 and in 1955 it exceeded \$600,000,000. These deficits have been influenced by the growth in the volume of goods and services imported in response to high levels of investment and other economic activity in Canada, and by the economic condition of Canada's trading partners. Despite wide fluctuations in the balance of Canada's current account in the post-war period, the balances have been small in relation to the gross international exchanges of goods and services by Canada, which in the past few years have been at an annual rate in excess of \$11,000,000,000. In 1954, the aggregate value of these transactions showed a decrease for the first time since the end of World War II but rose again in 1955.

Most of Canada's international transactions take the form of commodity trade. But the trade balances, when adjusted for balance of payments purposes, have been relatively small in recent years although they have fluctuated widely. The deficits on current account have been mainly the result of transactions termed "invisibles". The income account is consistently the largest contributor to this deficit and, although net payments of interest and dividends have fallen from the high levels of a few years ago, they continue to amount to well over \$250,000,000 a year, representing the net exchange cost of Canada's net debtor position which, by the end of 1954 had grown to some \$6,600,000,000. In recent years, Canada has experienced deficits on account of international travel (*see* p. 261) and on account of freight and shipping services; these together have recently amounted to more than \$100,000,000. "All other" current transactions also lead to a considerable deficit; this account reflects mainly the myriad business services provided to and by non-residents, as well as government transactions in which defence expenditures have at times loomed large. Against these substantial net debits on account of invisibles, there has been net gold production available for export amounting to about \$150,000,000.

Canada's current account deficits have been the real counterpart of very substantial inflows of foreign capital for direct investment in Canadian enterprises and for additions to foreign holdings of Canadian securities. These inflows, together with repayments on loans extended to other governments



ay and grain go aboard  
a freighter preparing to  
carry part of a large  
shipment of Canadian  
Holstein heifers to Peru  
where they will be used  
for breeding purposes.



in the early post-war years, have been more than sufficient to finance the current account deficits in most years.

Though on balance only a relatively small part of Canada's great post-war economic development has been financed from abroad, foreign capital has played a most important role in some of the more dramatic developments, and there has been a considerable growth in the nation's net balance of international indebtedness. This in 1954 was some \$6,700,000,000. Gross liabilities to non-residents in 1954 amounted to nearly \$13,600,000,000 but external assets were equal to somewhat more than half of that amount. The largest and most rapidly growing element in Canada's liabilities is the foreign direct investment in industrial enterprises, mainly from the United States, but non-resident holdings of the bonds of Canadian governments and municipalities, and of securities of Canadian-controlled companies, are also of great importance.





*The village of Alma and Cape Owl's Head which lie at the entrance to Fundy National Park in New Brunswick.*

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The value of United States investments in Canada in 1954 amounted to \$9,622,000,000 and was higher than ever before, being not far from double the value at the end of the War and some three times the value in 1926. British investments at \$2,143,000,000 were again rising after sharp reductions during the war years but were still considerably below their relatively stable inter-war value. Investments in Canada owned by residents of other countries have also been increasing but, at \$704,000,000 in 1954, were still comparatively small in relation to United States and British investments.

Foreign investors now own about one-tenth of the funded debt of Canadian governments and municipalities and about one-third of the broad field of Canadian industry and commerce. Their investment represents only a negligible part of other forms of Canadian wealth such as farm, residential and personal property. The proportions have been declining. Before World War II about one-quarter of government debt was in foreign hands; so was the ownership of about 38 p.c. of Canadian industry. Because of the concentration of post-war investment by foreigners in manufacturing and mining enterprises, their share of these particular fields has increased. Nearly 56 p.c. of the capital of mining, smelting, and petroleum exploration and development companies was owned by non-residents at the end of 1953 compared with 40 p.c. in 1939. The share of foreign capital varies widely in different fields of manufacturing. The percentage is comparatively large in some branches such as non-ferrous metals, the automobile industry, and petroleum refining; it is comparatively low in other fields such as textiles and primary iron and steel. In some industries such as newsprint and wood products, non-resident capital plays a very important part but a large share of ownership is Canadian.

Although external assets are sufficiently large to cover more than half Canada's international liabilities, they are in some respects different in

character. More than half are assets of the Government of Canada in the form of war and post-war loans to overseas countries and of official gold and foreign exchange holdings. Private assets abroad include long-term direct and portfolio investments of some \$2,500,000,000 in 1954; since the War these holdings have shown a rate of growth somewhat higher than that of foreign private long-term investment in Canada.

## *Travel between Canada and Other Countries*

Travel between Canada and the United States, which is greater in volume than that between any other two countries, has been a special feature of contact between the two nations for many years and has played an important

### *The Border that Invites Crossing*

*The Rainbow Bridge, with its carillon tower, spans the Niagara River linking Ontario and the State of New York just below the famous Niagara Falls.*

*One of the several points of crossing from the State of Washington to British Columbia.*







*East or west, all across the country, are to be found exciting fishing spots on myriads of lakes, rivers and streams—weekend fishing spots within easy reach of wherever you happen to be, or vacation fishing spots on unknown and unnamed lakes and streams of the hinterland awaiting the adventurous spirit. In all of them there is beauty and quietness and the rejuvenating freshness of the great outdoors to be revelled in and enjoyed.*





part in fostering international goodwill on the level of the ordinary citizen. Convenient communications across the continent-wide border as well as the proximity of large groups of people residing close to the border on both sides have assisted in this tourist movement and as a result the people of Canada and the United States are thoroughly familiar with each other's way of life. Neither passports nor visas are required for these tourists, the majority of whom travel by private automobile.

Recently there has been a deficit in Canada's travel account with the United States. Each year since 1952 expenditures by Canadians in the United States have exceeded expenditures in Canada by visitors from that country, contrasting sharply with the surpluses customary in earlier years. The deficits have resulted from the more rapid growth in the movements and expenditures of Canadian travellers to the United States since the removal of restrictions on travel in a period when United States travel to Canada has been generally comparatively stable, with the exception of an appreciable rise in 1953. In 1954 expenditures of Canadians amounted to \$313,000,000, exceeding by \$33,000,000 the amount spent in Canada by visitors from the United States.

A very large part of the movement across the border is connected with international commuting and other local visits. The number of longer-term visitors who more properly constitute the tourist trade is a relatively small part of the total traffic but account for most of the expenditures. Thus, in 1954, the 4,200,000 visitors from the United States who stayed for more than two days spent some \$221,600,000 or 79 p.c. of \$280,600,000 spent by all United States visitors in Canada. There is a similar concentration of expenditures among the longer-term travellers from Canada to the United States. The 2,700,000 Canadians visiting the United States for more than two days spent about \$240,000,000, or over 76 p.c. of total expenditures by Canadians of \$313,000,000.

Canadian travel to overseas countries has been increasing substantially each year. The \$69,000,000 spent overseas in 1954 was double the amount spent in 1951. About one-half of the outlay abroad goes to the United Kingdom, being either spent in that country or on trans-Atlantic transportation provided by British carriers. In 1954 the expenditures of non-resident visitors in Canada were only about one-third of the amount of Canadian expenditures overseas.

The balance of payments on travel account between Canada and other countries for 1951-54 were, in millions of dollars:—

<u>Item</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>
Account with the United States—				
Credits.....	258	257	282	280
Debits.....	246	294	307	313
Net.....	+ 12	- 37	- 25	- 33
Account with Overseas Countries—				
Credits.....	16	18	20	22
Debits.....	34	47	58	69
Net.....	- 18	- 29	- 38	- 47
Account with All Countries—				
Credits.....	274	275	302	302
Debits.....	280	341	365	382
Net.....	- 6	- 66	- 63	- 80



The fine beaches of Point Pelee National Park are well used. Point Pelee, stretching out into Lake Ontario, is Canada's southernmost mainland point.



Elk Falls on Campbell River, Vancouver Island, B.C.

Trail riding near Pincher Creek, Alta.





*Ste. Adèle in the famous Laurentian resort district north of Montreal. Thousands of people vacation, winter and summer, in this delightful area, some in palatial hotels but just as many in small "pensions" and private cottages.*





Canadian railways, in the years since the end of the War, have made vital and impressive progress in modernization of facilities and services. Nineteen fifty-five was a banner year when new equipment, put into operation on the two great transcontinental lines, cut 14 to 16 hours from the Montreal to Vancouver run.

# Transportation and Communications

**N**O other branches of the nation's economy exemplify so well the range and variety, the extent and significance of Canada's remarkable post-war development as do those of transportation and communications. New branch railways and airways into frontier mining regions, trans-oceanic and trans-polar air services to world population centres, multi-lane and express highways humming with inter-city truck and passenger vehicles, pipelines bearing new energy resources to industrial and domestic consumers, a deep-water St. Lawrence seaway under construction into the heart of the continent, vast extended networks of telephone, radio and television communication facilities—all these, embodying as they do the latest technological advances, contribute greatly to Canada's industrial expansion and economic climate and, in bridging great distances and topographical barriers and in integrating diverse communities, serve to enhance the national unity and sense of well-being.

## • Transportation

The range of requirements for transportation services is so wide that no single medium can meet the demands of industry and the travelling public. The railways have served and will continue to serve as the principal facility of movement because only they have the capacity to supply cheap all-weather transportation in large volume over continental distances. But they are being faced to an increasing extent with specialized competition from air, water, and other land transport enterprises.

The air lines are specialized in speed of movement which gives them a definite advantage in the transport of passenger and mail traffic. The air lines, too, are taking over the opening up of new areas for development, a job formerly carried on, where this was economically and physically feasible, by railway and waterway facilities. Moreover, speed, lower capital outlays in instituting service and ability to reach otherwise inaccessible areas have been instrumental in establishing the air lines in this field. Today there are many isolated mining properties that have been prospected, proven, developed and maintained by air transport.

Water carriers are specialized in low-cost bulk movement of goods in which speed of service is not a critical factor. Most of the movement in this field is over the Great Lakes-St. Lawrence waterways. About 50 p.c. of the lake tonnage is engaged in carrying grain and the balance carries ore, coal, pulpwood, crude petroleum, limestone and general cargo. The oil pipeline, a relatively new development in Canada, is a means of transportation that has a definite advantage over other methods for the movement of petroleum and petroleum products.

Road transport has, of course, since the earliest days, played an unparalleled part in local passenger and freight movement. This service has gradually extended until now it provides great arteries for both short- and long-distance commercial and passenger traffic. The relatively low cost of operation of commercial road vehicles makes them particularly suitable for short-haul traffic moving in comparatively small volume.



*Comfort is the keynote  
chair-car accommoda-  
tion on Canadian  
way inter-city day*

## ***Railways***

The two great transcontinental railway systems operating in Canada, the Canadian National Railways and the Canadian Pacific Railway Company, are endeavouring by increased service and new and modernized equipment to meet the challenge of competition, complexity and expansion that has become the pattern of transport service. New streamlined, stainless steel transcontinental passenger trains, combining speed and efficiency with the optimum of comfort and service, have cut hours off the rail trip from Halifax to Vancouver. Rapid dieselization has continued and freight car inventories as well as capacity are constantly increasing. Self-propelled rail diesel cars expedite service on short runs and trucks carried on flat cars complete the service from source to destination. New lines are built to keep trackage abreast of the country's development. Entirely new districts have recently been opened up by the construction of the 43-mile Terrace-Kitimat line in British Columbia, the 144-mile Sherridon-Lynn Lake line in Manitoba and the 360-mile Quebec, North Shore and Labrador Railway. A 16-mile line connecting the mining community of Nephton with Havelock in eastern Ontario provides easy access to an area producing non-metallic rock. Two branch lines, one from Struthers to Greco and one from Hillsport to Manitouwadge, tap this new mining district of northwestern Ontario, and a line is under construction to open up another Quebec mining area from Beattyville to Chibougamau and St. Felicien.

The CNR, a government-owned system, is Canada's largest public utility, operating, in addition to its rail network and the multifarious associated facilities, a fleet of coastal and ocean-going steamships, a nation-wide telegraph service providing efficient communication between all principal points of Canada with connections to all parts of the world, express facilities in Canada and abroad, a chain of hotels, a scheduled trans-Canada and North American air service and a trans-Atlantic air service.

The CPR, a joint-stock corporation, has, in addition to its far-flung railway operations, a fleet of inland, coastal and ocean-going vessels, a north-south air-line system which is one of the world's greatest air freight carriers, a



The railway, following almost on the heels of the prospector into frontier areas, affords efficient transportation to carry in the tools of development and bring out the products of Canadian enterprise.



▲  
Bulldozers clear a right-of-way through the forest.

►  
A path is blasted through rock. Construction crews "dress" the slope before steel is laid.



▼  
Advancing three-quarters of a mile a day, this self-contained tracklaying outfit carries its own rail, ties and track fastenings.



trans-Pacific air-line service to the Orient and the Antipodes, air service to Mexico and Peru and a Polar route from Vancouver to Amsterdam, a chain of year-round and resort hotels, a cross-Canada telegraph network, a world-wide express service and a truck and bus transport service.

These two transportation systems co-operate, under government supervision, in avoiding unnecessary duplication of railway service. The Board of Transport Commissioners controls freight and passenger rates as well as other matters relating to construction, operation and safety.

The combined length of line operated by these two companies, together with that owned by a number of smaller companies, was 58,760 miles in 1954. Gross operating revenues of all railways amounted to \$1,095,440,918 and operating expenses were \$1,019,534,989, compared with \$1,205,935,414 and \$1,100,393,836 in 1953. The 57,547,300,439 ton-miles of revenue freight carried in 1954 was a decrease of 7,719,715,061 ton-miles as compared with 1953. Passengers carried numbered 28,396,528 compared with 28,736,159 in 1953 and employees averaged 196,307 as compared with 211,951.

### **Urban Transport Services**

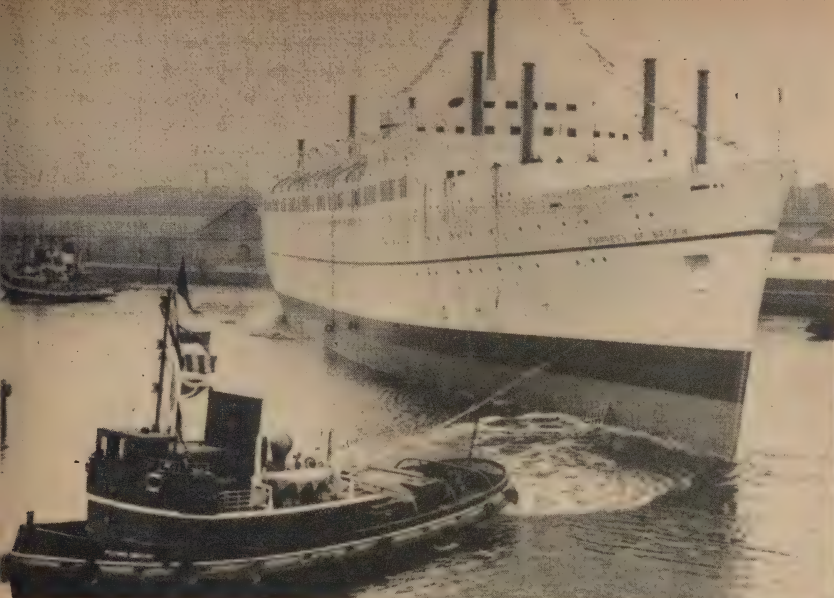
Many changes have been made in urban transport systems in recent years. The electric streetcar is being steadily replaced as the principal vehicle of mass transportation in most Canadian cities and towns by motor buses and electric trolley buses. Few of older or central sections of the cities were designed to carry the volume of motor traffic with which they must now contend and, while the streetcar is particularly suited to the efficient movement of large numbers of people, lack of manoeuvrability in traffic-jammed streets has contributed to its gradual demise. Well over half of the passengers carried by urban transport systems—systems operating electric railway, rapid transit or subway, motor bus, motor coach or trolley facilities in urban, suburban or inter-urban service—are now carried by motor or trolley buses.

In 1954, urban transit systems carried 1,254,644,000 passengers compared with 1,309,207,000 in 1953. Inter-urban services carried 84,064,355 passengers, 8,652,773 fewer than in the previous year. There has been a definite downward trend in traffic on transit facilities since 1949. A large proportion



*The dinette car, recently added to railway service, has proved a successful innovation.*





*Her Majesty Queen Elizabeth II sent the Canadian Pacific Railway's new 24-ton liner "Empress of Britain" sliding down the ways into the River Clyde on June 22, 1955. The liner will go into service between Montreal and Liverpool early in 1956.*



of the 2,720,095 private passenger vehicles in use, including automobiles and motorcycles, is competitive with the transit systems. The recent rapid development of suburban areas has had the effect of encouraging the purchase of private cars as well as increasing the operating costs of transit-company service. At the same time, the advance in fares made necessary mainly because of this suburban expansion has discouraged to some extent the previously profitable short-haul city traffic.

## **Roads and Highways**

An ever-lengthening network of roads is binding the Canadian provinces closer together. At the end of 1953 there were 190,997 miles of surfaced road and 326,812 miles of non-surfaced road. Of the surfaced road, 160,265 miles were gravel, 28,890 miles were bituminous and 1,841 were concrete.

Between 1946 and 1953 over a billion dollars was spent on highway construction, more than was spent in the preceding quarter-century. In the



latter year alone, \$397,000,000 was spent on new construction and maintenance of roads, bridges, ferries and other works, \$341,500,000 of which was supplied by the provincial governments and the remainder by the federal and municipal governments. All roads, except those in the Territories, the National Parks and Indian reserves, which are the responsibility of the Federal Government, are under the jurisdiction of provincial and municipal authorities. The expenditure on roads for 1954 by the three levels of government probably totalled \$600,000,000, about 60 p.c. for new construction, 36 p.c. for maintenance and 4 p.c. for administration.

Even so, construction has not been able to keep pace with the needs of the Canadian population on wheels. For example, the number of motor-vehicles per mile of surfaced road has been increasing year by year; in 1946 it was 11.6, in 1953 it had risen to 18.0 and by the end of 1954 it was probably around 20. The Trans-Canada Highway program, which was started in 1949, has been progressing very slowly. Nine provinces agreed to participate in the program and undertook to construct and maintain that portion of the highway, other than in federal lands, within their borders and the Federal Government agreed to share equally with each province the cost of new construction and the cost of construction of existing highways taken into the system. Quebec, the tenth province, though not co-operating with the Federal Government on a financial basis, is still providing a highway linking the two ends of the Trans-Canada route in Ontario and New Brunswick. The total mileage of the highway, outside of Quebec, is 4,580 miles. By the first of November 1955, 2,853 miles had been paved but only 1,523 were constructed to Trans-Canada Highway standards. There were two important gaps where construction had not started—50 miles between Clarendville and Gambo in Newfoundland and 180 miles between Chapleau and Marathon in northern Ontario. In order to expedite the completion of this route, the Federal Minister of Public Works announced early in 1956 that Parliament would be asked to pass legislation permitting the federal authorities to assume 90 p.c. of the cost of up to 10 p.c. of the highway mileage in provinces where gap-closing operations are required.

## **Motor-Vehicles**

There were more motor-vehicles registered in Canada in 1954 than ever before. Of the 3,644,589 registrations—compared with 3,430,672 in 1953—2,688,465 were for passenger cars and 956,124 for commercial vehicles and motorcycles, including 856,851 trucks, 9,860 buses, 37,665 motorcycles and 51,748 other vehicles. Registrations in the different provinces were as follows: Newfoundland, 34,423; Prince Edward Island, 20,848; Nova Scotia, 133,087; New Brunswick, 99,058; Quebec, 674,114; Ontario, 1,489,980; Manitoba, 210,471; Saskatchewan, 267,373; Alberta, 338,541; British Columbia, 371,711; and the Yukon and Northwest Territories, 4,983.

Provincial revenues from motor-vehicle registrations and licences reached a high of \$93,849,956 in 1954, and provincial gasoline tax revenues amounted to \$235,702,205. Taxable gasoline sold, most of which was consumed by motor-vehicles, amounted to 2,021,002,458 gal. in 1954.

The apparent supply of new passenger vehicles in 1954 amounted to 305,877 cars, 67,195 fewer than in 1953. The 1954 figure includes 267,452 cars made for sale in Canada plus 38,509 imports, less 84 re-exports of imported cars. In that year, 310,546 passenger cars valued at \$797,554,000 were sold,

as well as 72,082 trucks and buses valued at \$191,964,000. Over 40 p.c. of the number and nearly 30 p.c. of the value of these vehicles were financed by finance companies. The average financed value was \$1,897.

*Motor-Carriers.*—The movement of freight and passengers by motor-vehicle has assumed a place of great importance in the national transportation picture. Technological improvement of equipment, the extension of hard-surfaced highways and the construction of new high-speed express highways have contributed greatly to increased traffic in recent years.

Motor-carrier statistics do not represent a complete coverage of the industry which is largely made up of small businesses with hundreds of licensees, each operating one or two trucks. Their bookkeeping is often sketchy and, at the same time, amalgamations and retirements are numerous, making a census difficult. In 1952, 4,040 carriers reported and, of these,

e demand for im-  
proved and addi-  
tional highways in a  
country of difficult  
terrain and climatic  
extremes is an ever-  
increasing problem,  
physical and financial,  
facing provincial and  
municipal authorities.

entering Hope, B.C.

overleaf north of  
Toronto, Ont.



1,854 were small operators with revenues under \$8,000 for the year, most of them driver-owner operated. Eight hundred and fifty-three freight carriers had revenues of between \$8,000 and \$19,999; 908 had revenues of \$20,000 or over. There were 425 passenger carriers including urban and inter-urban systems other than those operating streetcars or trolley buses.

### *Statistics of Motor-Carriers, 1949-52*

Item		1949	1950	1951	1952
Investment in land, buildings, and equipment.....	\$	124,984,523	141,213,577	160,225,318	177,112,456
Revenue.....	\$	159,631,109	179,301,971	200,616,604	233,973,179
Equipment—					
Trucks.....	No.	10,937	11,126	11,368	11,649
Tractors, semi-trailer.....	"	3,197	3,640	4,081	4,791
Trailers.....	"	1,825	2,496	3,281	3,822
Buses.....	"	4,623	4,710	4,874	4,683
Passengers carried.....	"	376,187,446	363,341,945	365,946,738	340,099,978
Freight, inter-city and rural <sup>1</sup> .....	ton	15,087,704	19,009,488	18,248,756	19,095,669

<sup>1</sup> This item is not reported by all carriers.

## **Shipping**

The importance of shipping in the economy of the country may be realized when consideration is given to the fact that Canada is one of the world's major trading nations and that a large portion of the goods coming into and leaving the country does so by way of the sea. Also, Canada possesses large navigable waterways extending inland which not only lead to the seaports but provide, as well, cheap service from one point to another along the way. The inland lakes and rivers are almost innumerable and there are vast outlying areas where water is still the only available means of transportation. Many settlements along both east and west coasts depend entirely upon coastal shipping for the transport of goods and passengers.

There is no record of all the freight carried by water in Canada, but there is a record of the number and tonnage of ships calling at all ports at which there are customs collectors and of cargoes of vessels trading between these ports. All waterways including canals and inland lakes and rivers are open on equal terms, except for the coastal trade, to the shipping of all countries of the world so that the commerce of Canada is not dependent entirely upon Canadian shipping. However, a large part of the inland and coastal traffic is carried in ships of Canadian registry.

During 1954, customs officials reported 118,969 vessel arrivals in foreign and coastal service as compared with 123,075 and 113,505 in 1953 and 1952, respectively. The total tonnage of all cargoes loaded and unloaded in foreign trade at all Canadian ports amounted to 63,004,521 tons, of which 21,415,618 tons or 34 p.c. was carried by vessels of Canadian registry.

As in former years, the bulk of foreign trade was with the United States which accounted for 36,270,337 tons, or 57.6 p.c. of the total. Canadian vessels carried 55.7 p.c. of this water-borne commerce. In trade with other countries, however, Canadian shipping fared less well, carrying only 1,202,938 tons of a total of 26,734,184 tons. Most of this freight was carried by vessels of the United Kingdom, United States, Panama, Norway, Sweden and Italy.





The "Princess of Vancouver" entering Vancouver Harbour under Lion's Gate Bridge. This 800-passenger ship was added to the Vancouver-Nanaimo ferry service in the summer of 1955 and performs three of the eleven daily return sailings by CPR vessels across the Straits of Georgia.

In 1954, commodities exported by vessel amounted to 30,730,355 tons, 4.6 p.c. below the 1953 total. The greatest decrease was recorded at Great Lakes and St. Lawrence River ports above Montreal which dropped from 6,320,032 tons in 1953 to 4,959,342 in 1954, or by 21.5 p.c. Major Canadian exports, with 1953 totals in parentheses, included: wheat 5,611,370 tons (7,588,616); iron ore 6,076,307 tons (4,907,331); gypsum 2,785,278 tons (2,798,715); lumber 2,586,740 tons (2,110,304); newsprint 2,116,812 tons (1,997,009); and pulpwood 1,602,660 tons (1,553,414).

Imports received by ship also declined in 1954, dropping to 32,274,166 tons from 38,691,879 in 1953, or by 16.6 p.c. Lighter shipments were reported for bituminous coal which decreased to 12,372,250 tons from 14,813,235. Alberta crude oil shipped from Superior, Wis., to Sarnia decreased to 543,283 tons from 3,365,157 as a result of the completion of the oil pipeline, and iron-ore shipments dropped to 3,147,033 tons from 4,384,596. Decreases were also registered for anthracite coal, limestone, gasoline, United States crude oil and general freight. Increases were recorded for corn, soybeans, sugar, bauxite, sand and gravel, iron and steel, fertilizers and chemical products.

The gross investment in vessels, docks, wharves, warehouses, land and buildings, and equipment reported by the water transportation industry in 1953 amounted to \$305,477,917. Gross income received from this investment was \$256,880,406. The industry employed 20,109 workers and paid out \$51,084,867 in salaries and wages, an average of \$2,540 which did not include the value of meals and lodging estimated at \$5,954,665.

Lighthouses and other marine danger signals, a pilotage service and radio signal and direction-finding stations, as well as federal legislation and regulations, maintain a high standard of safety for navigation in and around Canada.

## Harbours

Overseas exports and imports comprise a large proportion of Canada's international trade and the long routes over which these commodities travel—the overland routes and the sea lanes—are linked together by a number of deepsea harbours. Having in mind the importance of deepsea ports as inherent and vital units in the national system of transportation, and for purposes of ensuring greater efficiency and economy in operation, improvement and strengthening of engineering services as well as uniformity in regulations and tariffs, eight of these harbours have been placed under a permanent central board for administration as national ports in accordance with national policy and with the assistance of national credit. The National Harbours Board is an agency of the Crown, responsible to Parliament through the Minister of Transport. Seven other harbours are administered by commissions that include municipal as well as federal appointees and, in addition, there are about 300 public harbours, all of which come under the supervision of the Department of Transport.

The harbours administered by the National Harbours Board are Halifax and Saint John on the Atlantic seaboard; Chicoutimi on the Saguenay River and Quebec, Three Rivers and Montreal on the St. Lawrence River in Quebec; Churchill on Hudson Bay; and Vancouver on the Pacific Coast. Assets administered by the Board represent, at cost, an outlay of \$245,000,000, and facilities include wharves, vessel berths, transit sheds, grain elevators, cold-storage warehouses, terminal railways, shore and floating equipment, workshops, electric-power and water-supply systems and industrial sites. The extent and variety of facilities at each port are, of course, influenced by the nature and volume of the traffic passing through that port. In general, the objective is to make the national harbours as self-sustaining as possible, first, by business-like management and, second, by charges for the use of facilities and services that are fair by accepted standards. It is the policy of the Board to provide the necessary major facilities for public use but to refrain from performing certain services that can be provided adequately by private interests.

The freight loaded and unloaded at the larger ports from sea-going vessels frequently constitutes a surprisingly small part of the total freight handled. Usually, the volume coming in or going out by coasting vessels is larger. It is not possible to obtain statistics of freight handled in all ports and harbours, but the water-borne cargo handled at the eight principal ports in 1954 was as follows:—

	<i>Tons</i>		<i>Tons</i>
Halifax.....	3,969,097	Montreal.....	16,158,423
Saint John.....	2,205,324	Churchill.....	382,195
Chicoutimi.....	330,027	Vancouver.....	11,489,075
Quebec.....	3,135,199		
Three Rivers.....	3,221,513	TOTAL.....	40,890,853

## Canals

The St. Lawrence waterway with its ship channel and series of canals is the world's greatest inland navigation system, providing as it does a great navigable artery from the Atlantic Ocean to the western end of Lake Superior,

a distance of more than 2,200 miles. It has enabled Canadian grain to be sold at competitive prices in the markets of the world and aided in the expansion of manufacturing and trade in the St. Lawrence lowlands. The development of this waterway as a highway of international trade has involved a series of engineering projects in keeping with the increasing demands of traffic and the safety of larger and faster ships. Throughout its course, 31 locks overcome a rise in level of 600 feet. At present the canals on the St. Lawrence River have a navigable depth of up to 14 feet but between the lakes the navigable depth is 25 feet, permitting the passage of large lake freighters from the Upper Lakes to Prescott on the St. Lawrence.

In the autumn of 1954, following protracted negotiation between Canada and the United States with respect to power development and navigation works in the international rapids section of the St. Lawrence, construction of canals and other navigation works was begun by the St. Lawrence Seaway Authority and the United States counterpart, envisaging adequate navigation for vessels of 25-foot draught, from Montreal to the head of the Great Lakes.

The canals of Canada may be divided into two classes: the main route canals on the St. Lawrence River and the Great Lakes, including the Lachine, Soulanges, Cornwall, Farran Point, Rapide Plat and Galop Canals on the St. Lawrence River, the Welland Ship Canal between Lakes Ontario and Erie, the Sault Ste. Marie Canal between Lakes Huron and Superior; and subsidiary canals or branches including the St. Peters Canal between Bras d'Or Lakes and the Atlantic Ocean, Nova Scotia; the St. Ours and Chambly Canals on the Richelieu River, Quebec; the Ste. Anne, Carillon and Grenville Canals on the Ottawa River; the Rideau Canal between the Ottawa River and Lake Ontario; and the Trent and Murray Canals between Lake Ontario and Georgian Bay in Ontario.

Although much of Canada's oil is now moved through pipelines, oil tankers are still a familiar sight on the inland waterways.





Evidence of the importance of this transportation system as a highway of commerce is the fact that, during 1954, 30,070,701 tons of freight passed through the canals in 25,292 vessels. In addition, thousands of pleasure craft locked through; one point, Sault Ste. Marie, was passed by 115,014 passengers.

## **Civil Aviation**

The control of civil aviation in Canada is under the jurisdiction of the Federal Government. The Department of Transport deals with the technical side, which includes matters of registration of aircraft, licensing of airmen, establishment and maintenance of airports and facilities for air navigation, air traffic control, accident investigation and the safe operation of aircraft. Certain statutory functions with respect to the issue of licences to operate commercial air services and the subsequent economic regulation of commercial air services in accordance with the dictates of the public interest are assigned to the Air Transport Board.

Air transport services are grouped into two broad classes—non-scheduled services and scheduled services.

**Non-scheduled Services.**—Non-scheduled services include specific point-to-point services not on regular time schedules; charter and contract services; and specialty services. Such services provide access to sections of Canada that are inaccessible by other means of transportation and also act as feeders to the scheduled airlines. The use of aircraft for the transport of personnel, equipment and supplies has become vital to the exploration and development of the remote parts of Canada and has made many projects in otherwise inaccessible areas economically sound and physically possible. In the year ended Mar. 31, 1955, non-scheduled operators flew 15,930,686 revenue miles, carried 340,347 passengers, 55,710,892 lb. of goods and 841,464 lb. of mail.

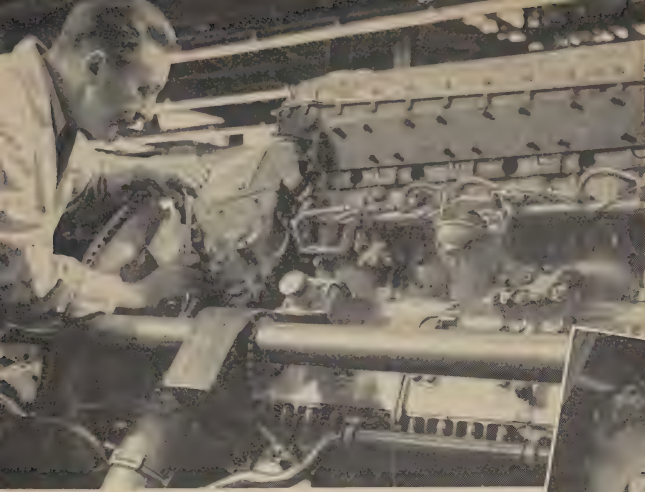
Non-scheduled operations, through a variety of other services, are making important contributions to the discovery, conservation and development of the natural resources and to the expansion of the Canadian economy. Aerial photography, which has been highly developed, is applied to geological surveys, mapping, timber-estimating and operation-planning, as well as to the planning of oil pipelines, roads and many large construction projects. An outstanding contribution by aircraft has been made in the field of exploration and prospecting for minerals. Aircraft have long been employed for the protection of forests by the use of fire-spotting aerial patrols, by aiding in fire-fighting operations and by the dusting of forest areas against destructive insects. In the agricultural sphere, aircraft are used for crop-dusting and spraying to control insect pests, and for seeding and frost control. In connection with the protection of wildlife resources, aircraft are used to patrol wide areas for the detection of poachers and violators of fish and game regulations, and for the stocking of lakes and streams with fingerlings. Among the many other services performed by means of aircraft are: patrolling power lines and pipelines, police activities, missionary work, aerial ambulances and advertising.

At Mar. 31, 1955, there were 198 commercial operators licensed to conduct scheduled, non-scheduled and specialty services, and there were 90 flying schools and flying clubs licensed for training activities.



Passengers board a TCA Super Constellation at Montreal airport.

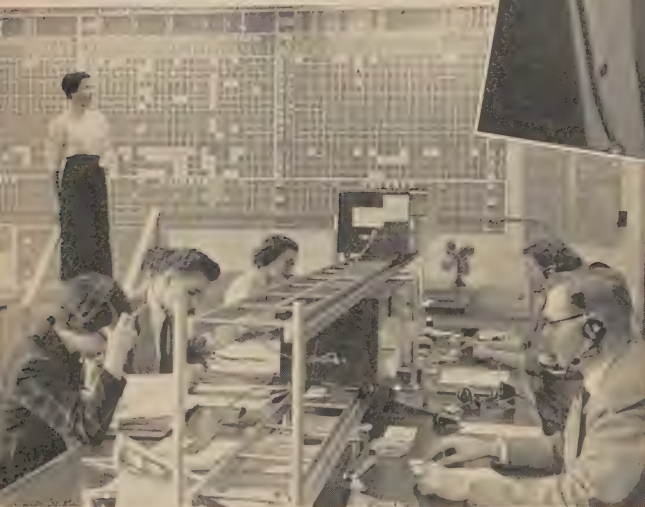
**Scheduled Services.**—*Trans-Canada Air Lines.*—TCA, a publicly owned company, was incorporated by Act of Parliament in 1937 to co-ordinate air transport across the broad expanse of Canada and to help provide facilities for Canadian international air service. Today more than 160 flights are scheduled daily over TCA's network of airways. A high frequency of trans-continental and connecting flights operate a passenger, mail and commodity service across the country from St. John's, Nfld., to Victoria, B.C., and an inter-city network, which feeds into the mainline route, makes air transportation facilities available to most important Canadian centres. Trans-border routes to the United States serve Boston, New York, Chicago, Cleveland, Tampa, Detroit (Windsor) and Seattle. TCA also flies across the North Atlantic to London, Paris, Prestwick, Shannon and Dusseldorf. Trans-ocean routes reach south from Canada to Bermuda, the Bahamas, Jamaica, Barbados and Trinidad. On May 2, 1955, TCA introduced scheduled all-freighter service between Montreal and Vancouver, the first such trans-continental service in Canada. Late in 1955, TCA took over CPA's Quebec and northern Ontario routes, and thereby included six more centres in its national air network. Also, service was introduced between Quebec city and the Maritime Provinces. Tourist air service to Florida, Bermuda and the Caribbean was inaugurated and family fare plan rates were extended to the trans-Atlantic flights for winter travel. The management of TCA is vested in a Board of Directors—five of the nine members are elected by the shareholders and four are appointed by the Governor in Council. All TCA stock is held by the CNR, which in turn is wholly owned by the Government of Canada.



Behind TCA's service is a staff of 8,000 people, each carrying a share of the Air Lines' great responsibility.

Every engine, propeller, instrument and accessory is overhauled at specific intervals by master mechanics and technicians.

A coast-to-coast reservations organization supports the speed of aircraft operations. A 17,500-mile teletype network with two switching control centres links 65 cities and airports across Canada and the United States.



Highly skilled pilots, carefully selected and intensively trained, fly the Company's aircraft.

At the end of 1955, the TCA fleet consisted of 22 North Stars, 26 DC-3's, seven Super Constellations, 14 Viscounts and three Bristol Freighters. Viscount turbo-propeller aircraft were introduced on Apr. 1, 1955, and 25 will be in service by 1957.



Statistics of TCA operations for 1954 are as follows:—

	No.
Total service mileage.....	24,016
Aircraft miles flown.....	32,327,405
Revenue passengers carried.....	1,438,349
Revenue passenger miles flown.....	852,475,532
Air freight ton miles flown.....	8,345,258
Air express ton miles flown.....	1,787,000
Mail ton miles flown.....	6,942,299
TCA staff.....	7,991

*Canadian Pacific Air Lines, Limited.*—CPA was formed in 1942 by the amalgamation of small commercial operators servicing Canada's northland, and its domestic service, grown to cover 9,354 route miles, is still largely a freight carrying service from the larger cities northward. With an overseas service now covering 27,610 route miles, CPA operates the seventh largest route pattern in the world. Two notable advancements were made during 1955. A new trans-polar route was inaugurated between Amsterdam and Vancouver, at which point connection is made with its existing routes servicing Australia, New Zealand, the Fiji Islands, Hawaii, Japan and China, in effect bringing these countries 1,000 miles closer to Europe and the United Kingdom. Also in early November, CPA introduced the first high-speed, non-stop service between Toronto and Mexico city when it inaugurated weekly flights linking these two points.

Domestic routes are flown by DC-4, DC-3 and Convair 240 aircraft. DC-6B's are used on all overseas routes. CPA has placed orders for a fleet of Britannia turbo-prop liners, three of which will be delivered in 1957. These aircraft will enable CPA to fly 100 passengers non-stop between Vancouver and Amsterdam in 12 hours, and between Vancouver and Tokyo non-stop also in 12 hours.

Statistics of CPA operations for 1954 are as follows:—

	No.
Total service mileage.....	36,964
Revenue miles (passenger).....	198,803,192
Revenue passengers.....	246,965
Airmail (pounds).....	2,983,331
Revenue goods ton miles.....	2,261,920

dependent commercial operators, conducting on-scheduled and specialty services, provide effective access to otherwise isolated areas and act as feeders to scheduled air lines.



*Other Scheduled Services.*—In addition to Trans-Canada Air Lines and Canadian Pacific Air Lines, Limited, there are four domestic air lines licensed to operate scheduled services in Canada: Central Northern Airways Limited, Winnipeg, Man.; Maritime Central Airways, Limited, Charlottetown, P.E.I.; Queen Charlotte Airlines Limited, Vancouver, B.C.; and Quebecair Incorporated, Mont Joli, Que. These services provide passenger, freight and mail service in their respective districts and also carry on a certain amount of non-scheduled and charter service.

At the end of 1954 there were 15 Commonwealth and foreign air carriers holding a total of 19 valid operating certificates covering international scheduled commercial air services operating into Canada.

**Private Flying.**—At Mar. 31, 1954, there were 1,315 private aircraft registered in Canada. Many of these are used by ranchers, farmers, oil men and commercial firms as part of their business equipment.

**International Agreements.**—Canada's position in the field of aviation as well as its geographical location has necessitated co-operation with other nations engaged in international civil aviation. Canada played a major role in the establishment of the International Civil Aviation Organization, now with permanent headquarters at Montreal, and through the activities of that Organization has benefited by the joint knowledge and experience of all Member States in the technical and economic aspects of civil aviation.

In recent years Canada has been a signatory to agreements concerning civil aviation with Australia, Belgium, Denmark, France, Ireland, Mexico, the Netherlands, New Zealand, Norway, Peru, Portugal, Sweden, United Kingdom and United States. On the North Atlantic, Canada was given extended rights for traffic from Ireland, Japan and the Azores, and also rights in Belgium and landing rights in France.

On the Caribbean route, rights have been obtained in Florida from the United States and for points of call in British territories. In the Pacific, agreements provide for calls at Honolulu, Fiji and Hong Kong. In the trans-border field, TCA has the right to operate from Montreal to New York, and from Montreal and Toronto to the Bahamas and Jamaica with stops at Tampa or St. Petersburg, Florida. Operating certificates have been issued to fifteen Commonwealth and foreign scheduled services flying into Canada.

## **Pipelines**

At the end of 1954 there were approximately 4,600 miles of crude-oil pipelines (trunk, gathering and oil-products) in Canada and, in addition, 960 miles of pipeline in the United States (between Gretna, Man., and Sarnia, Ont.) carrying Canadian crude oil. Of major importance is the Interprovincial pipeline extending from Edmonton, Alta., to Sarnia, Ont., a distance of 1,765 miles and having a present capacity of 250,000 bbl. a day. Several short pipelines, both trunk and gathering, are directly connected with the Interprovincial pipeline, either delivering crude from the oilfields to Edmonton or Redwater, or are offshoots of the main line supplying oil to points along the way. The Trans-Mountain pipeline, 718 miles in length from Edmonton to Vancouver with a branch line crossing the international boundary at Sumas into the State of Washington, delivers western crude to British Columbia



*Pipelines carry natural gas from well to consumer in Alberta and Saskatchewan, but there is a great surplus that is not being utilized. Plans are under way for the construction of two long pipelines—one from the Peace River district to Vancouver and northwestern United States and one eastward to the great concentration of industry in southern Ontario and Quebec.*

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refineries and other refineries in the Pacific northwest. Oil from Venezuela, Arabia and other countries reaches Montreal refineries through a pipeline extending from Portland on the coast of Maine, and oil-products pipelines link the Montreal refineries with consuming centres along the St. Lawrence River as far as Toronto and with Ottawa. Other pipelines supply southern Ontario centres with products of Sarnia refineries. In 1954, 172,495,935 bbl. of oil were carried over Canadian pipelines.

The great reserves of natural gas in Alberta and Saskatchewan are utilized to some extent within those provinces and are distributed by a network of pipelines to city, town and industry outlets. A pipeline for the delivery of gas from the Peace River district of northeastern British Columbia to Vancouver and United States markets is under construction. Also, plans are under way for the laying of an all-Canadian pipeline to carry gas from Alberta as far east as Montreal with spur lines to export gas to the United States near Emerson, Man., and to import gas from the United States near Niagara Falls pending the arrival of Alberta gas by a trans-Canada route. Early construction of the main trunk line depends largely upon the Federal Power Commission of the United States giving approval to the sale of Canadian gas in the midwestern States and upon the ability of Trans-Canada Pipelines to arrange for finances and commitments to carry through its entire construction program.





*Long-distance operators dial calls by punching keys corresponding to perforations on the telephone dial. Each key sends an instantaneous pulse of two combined frequencies which activate switching equipment in the distant place.*

## • Communications

### Telephones

At the end of 1954 there were 3,860,269 telephones in Canada—25 per 100 population. In this respect Canada ranked third among the major nations of the world, preceded only by the United States and Sweden.

The 2,788 separate telephone systems, large and small, operating in 1954 co-operated in providing service across the country; 2,236 of these were small co-operative systems in rural districts and 389 were shareholder-owned companies. The largest of the latter were The Bell Telephone Company of Canada operating in Ontario and Quebec and serving 60 p.c. of all the telephones in Canada, and the British Columbia Telephone Company serving 9 p.c. of the total. Four private companies serve the Atlantic Provinces and three systems operated by the respective provincial governments serve the Prairie Provinces.

Long-distance services make possible the interconnection of practically any telephone across the country with any other, or with any of the 53,000,000 telephones in the United States. Connections are also available with more than 100 other countries and territories. Within Canada, long-distance service is provided by the separate systems and, on a nation-wide scale, by seven major systems which constitute the Trans-Canada Telephone System.

The use of telephone service in Canada runs at a high level. The estimated number of calls on all systems in 1954 was 6,347,532,000, representing an average of 1,644 calls per telephone or 418 calls per person of the population. Of the total, 138,000,000 were long-distance calls mainly within Canada or between Canadian and United States points.

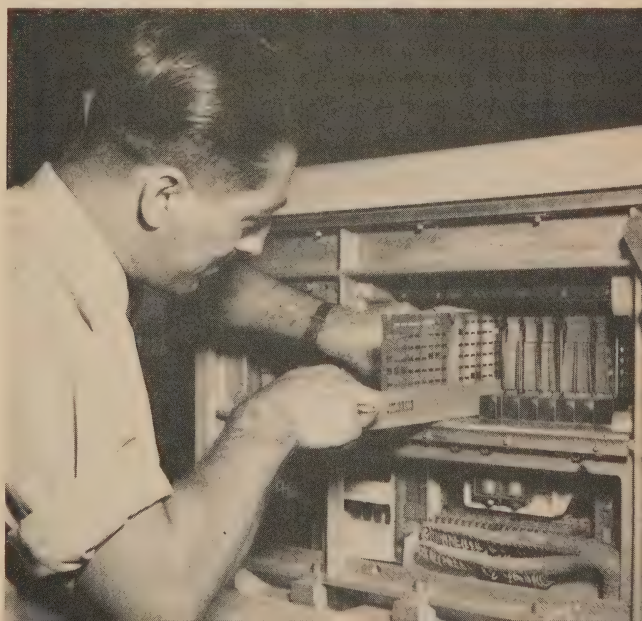
Investment in Canadian telephone enterprises continued to rise throughout 1954. By the end of the year total capital invested in telephone systems amounted to \$1,301,545,688. Employees numbered 51,929 and during the year they received \$159,329,238 in salaries and wages.

The tremendous growth of Canadian telephone systems in the past ten years has been matched by their technological development. Automation in the Canadian telephone industry began on a large scale some thirty years ago with the introduction of dial telephones and step-by-step equipment for automatic completion of local calls. About 70 p.c. of all telephones in Canada are now served by this method, and the proportion is increasing steadily. Crossbar, a type of automatic switching equipment faster and more flexible than step-by-step, is now being introduced in several Ontario and Quebec communities with heavy calling volumes. The same basic type of crossbar switching is employed in the new regional long-distance office opened at Toronto in 1955; a similar installation will soon be placed in service at Montreal. These machines enable operators to dial calls directly to telephones in many distant cities across the continent. Within a few years the extension of this system to most major centres in Canada and the United States, and the addition of automatic call accounting machines, will make it possible for customers themselves to dial a large percentage of long-distance calls.

These developments in the automatic switching of long-distance calls are accompanied by advances in the provision of transmission channels on a trans-Canada basis. The first inter-system microwave radio relay chain, between Toronto and Winnipeg, is under construction by The Bell Telephone Company of Canada and the Manitoba Telephone System. Projected extensions eastward and westward, with Bell's existing Ontario-Quebec chain as a nucleus, aim at coast-to-coast microwave facilities for telephone and television purposes by mid-1958.

More reliable trans-Atlantic telephony, over submarine cable, will become a reality in 1956 with the expected completion towards the year end of cables between Nova Scotia and Newfoundland and between Newfoundland and Scotland. This joint project of Canadian Overseas Telecommunication Corporation, the American Telephone and Telegraph Company and the British Post Office approached the half-way mark in 1955 with the successful

*The heart of the long-distance dialing machine is this electronic card index. Dial impulses, designating the area called, cause a steel card to drop from its position. Light rays passing through perforations in the card activate photo transistors and instantaneously select the most direct route available.*



laying of the first of two cables linking Clarenville, Newfoundland, with Oban, Scotland. Many years of intensive research on both sides of the Atlantic have culminated in the design of a repeatered cable that meets the exacting requirements of voice communication and promises to function reliably over a long-service life.

Canadian manufacturing companies produce the greater part of the telephone equipment and materials used in the country. Dependably high quality is maintained, and desirable uniformity is made possible in operating and maintenance practices across the country.

## **Radio and Television**

There were 179 standard broadcast band stations operating in Canada in September 1955, of which 22 were Canadian Broadcasting Corporation stations and 157 were privately owned stations. In addition there were 10 shortwave stations, of which three were CBC and seven were privately owned, together with five CBC and 26 non-CBC frequency-modulation stations.

**Canadian Broadcasting Corporation.**—The publicly owned Canadian Broadcasting Corporation is operated as a national public service; privately owned stations provide local community service, and many are affiliated with the CBC networks. As constituted under the Canadian Broadcasting Act, the CBC is responsible to Parliament through a Minister of the Crown. From time to time, the work of the CBC is reviewed by a special Committee of the House of Commons. A Royal Commission is at present making a full study of radio and television in Canada, including the relationship of the CBC with privately owned radio and television companies and the relationship between the Corporation and national fiscal policy.

CBC policy is determined by a Board of 11 Governors who act as trustees of the national interest in broadcasting. The Governors, representing the main geographic divisions of Canada and various facets of Canadian life, are appointed by the Governor General in Council for three-year terms. The Chairman is appointed for a ten-year term on a full-time basis. All operations and activities of the Corporation are carried out under the direction of the General Manager, who is the Chief Executive, and the Assistant General Manager. The CBC's income in sound broadcasting is derived from a current annual grant of \$6,250,000 together with revenue from a 15-p.c. excise tax on radio, television and phonograph sets and tubes, and revenue from some commercial programs. Television operations are financed through the same excise tax and through commercial programs.

*Radio Broadcasting Facilities and Program Service.*—The CBC operates 83 transmitters for its National Service and two for its International Service. Twenty-two are standard band AM stations, eight of which are of 50,000 watts to give good service to rural areas; five are frequency-modulation transmitters; two are shortwave transmitters which reach remote areas; and 54 are low-power "repeater" transmitters operating automatically with the network lines and serving sparsely settled areas. The two transmitters of the International Service operate on 18 frequencies. CBC network services reach more than 98 p.c. of the radio homes in Canada and extend



Variety—"Showtime" singing star. ▶



Discussion—Citizens' Forum panel on prisons and the reform system. ▼



Drama—"The Blood is Strong"—early days in the Maritimes. ▶



Farm—Demonstration of wool production. ▼



Children—"Maggie Muggins." ▲

from St. John's, Nfld., in the east to Vancouver Island in the west. The Trans-Canada and Dominion networks serve English-speaking listeners from coast to coast, and the French network serves French-speaking listeners from Moncton, N.B., to Edmonton, Alta. Ninety-six of the privately owned stations in Canada function as network outlets.

Canada's system of broadcasting is designed to overcome the problems posed by great distances, a scattered population, two official languages, and seven of the world's 24 time zones. Programs are planned regionally and nationally on CBC networks, and provide a substantial amount of Canadian production as well as outstanding programs from other countries. They offer a wide range of material including programs of substance and a good measure of straight entertainment.

Through CBC facilities, schools across Canada are provided with at least 30 minutes daily of broadcast programs specifically planned by departments of education to meet classroom requirements. In addition, national school broadcasts, prepared with the advice of the departments of education and teachers and financed by the CBC, are heard on Fridays. More than a million children in 15,000 schools across Canada hear these school broadcasts regularly. Canada's agricultural population is served by the most complete service of farm broadcasts in the world, including the weekly *National Farm Radio Forum*, which has about 12,000 members across Canada. A comparable program, *Citizens' Forum*, provides a national platform for discussion of topics of current interest. Programs of interest to women are scheduled for afternoon listening; there are special children's programs for out-of-school listening; and time is allotted regularly for religious programs. Free-time political broadcasts arranged with the parties concerned are heard both nationally and regionally. The special *CBC Wednesday Night* program offers a full evening of the finest in drama, music, talks, poetry, recitals, and performances by such groups as the CBC Symphony and the CBC Opera Company.

*Television.*—Canadian television came to Canada officially in September 1952, when the CBC's first television stations, CBFT and CBLT, were opened at Montreal and Toronto, respectively. Both stations began programming about three hours each evening. By January 1953, the program schedule at both centres had grown to 30 hours a week, and live programs from United States networks joined the Canadian schedule when the microwave link between Buffalo and Toronto was completed. By the end of May 1953, the microwave link between Toronto, Ottawa and Montreal was ready for service. In June the first Canadian TV network became a reality when the new CBOT at Ottawa swelled CBC-TV coverage to include one-third of Canada's population. By November 1955, CBC stations were on the air in Vancouver (CBUT), Winnipeg (CBWT), Toronto (CBLT), Ottawa (CBOT) and French-language (CBOFT), Montreal (CBFT for French-language programs and CBMT the English-language outlet), and Halifax (CBHT).

Private television stations were on the air at St. John's, Nfld.; Sydney, N.S.; Saint John and Moncton, N.B.; Quebec city and Rimouski, Que.; Peterborough, Kingston, Hamilton, Kitchener, London, Windsor, Wingham, Barrie, Sudbury, Sault Ste. Marie, and Port Arthur, Ont.; Brandon, Man.; Saskatoon and Regina, Sask.; and Lethbridge, Edmonton and Calgary, Alta.



Other private stations were in process of construction at Timmins and North Bay, Ont., Charlottetown, P.E.I., Jonquière and Sherbrooke, Que.

Fourteen stations between Windsor, Ont., and Quebec city were joined by direct microwave relay connection by the end of 1955, and plans were under way for the extension of the relay from coast to coast—expected to be in operation some time in 1958.

All Canadian television stations serve as outlets for the national TV system in addition to producing their own programs. They are required to carry 10½ hours a week of national network programs. Stations beyond the microwave network receive CBC programs on television recordings. In 1955 this CBC recording service was providing television stations with up to 50 hours programming a week.

Since Canadian television first went on the air it has become available to over 75 p.c. of the Canadian population. Today Canada is second in the world in terms of "live" television production and in terms of number of television transmitters in use. CBC television has developed a program schedule covering the wide range of entertainment achieved in its sound broadcasting, and based on the same objectives. On the English network, more than 50 p.c. of the schedule is made up of Canadian programming while, on the French network, more than 80 p.c. is Canadian-produced. These programs have included weekly drama series, leading sports events such as NHL hockey and the Grey Cup football final, children's series, news, variety, discussions, and many other types of programs. Most Canadian

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*Studio scene from the Control Room during a CBC television production.*







The principal characters and the effects man in the popular W. O. Schell radio series "Jake and the K"

television productions are "live" from studios at Toronto and Montreal, although studios are in operation at Vancouver and are under construction at Winnipeg, Ottawa and Halifax. Some programs shown on the CBC network are fed directly from United States networks via the microwave relay and some film features are also offered from other countries. Two separate experiments in television for school children have been undertaken by the CBC School Broadcasts Department in collaboration with the provincial departments of education and plans for further experiments are being encouraged.

The development of Canadian television is being accompanied by a great expansion in the electronics industry. In 1950 there were 30,000 television sets in use in the country; by 1951 the figure had climbed to 70,000 and by 1952 to 200,000. At the close of 1953 this number had much more than doubled and by the end of 1955 it reached over 1,900,000.

*CBC International Service.*—The International Service is financed wholly by funds voted by Parliament. The main program and production headquarters are in the Radio Canada Building at Montreal and two powerful 50,000-watt transmitters at Sackville, N.B., are linked with the studios at Montreal by a landline 600 miles long. Altogether the shortwave broadcasts of the International Service are listened to in some 30 countries. The programs are broadcast in 15 languages: English, French, German, Dutch, Danish, Swedish, Norwegian, Italian, Spanish, Portuguese, Czech, Slovak, Polish, Russian and Ukrainian. Countries that have poor reception because of geographical reasons, such as Austria and Greece, receive transcribed programs. The International Service endeavours to give listeners in other lands Canadian views on international affairs and a picture of Canadian life, with special reference to cultural, social and economic development. The Service has also developed a transcription service, which prepares special programs of Canadian music and the spoken word on disks. These programs are made available to Canadian missions abroad and are sent to radio stations and networks around the world.

## Postal Service

In serving the Canadian public, the Canada Post Office employs every means of transportation from mail plane to dog team. Service operates from Newfoundland to Vancouver Island and from the United States border to within a few hundred miles of the North Pole. Canada's air-mail, railway-mail and land-mail services are among the most extensive in the world.

In recent years all first-class domestic mail up to and including eight ounces in weight has been transported by air whenever this means expedites delivery. A network of air routes links up every section of the country within the shortest possible time and connects with the air services to the United States, Central and South America, Europe, Asia and Australasia. There are approximately 30,000 miles of air-mail and air-stage routes in the country. In fact, air transport is the sole means utilized in exchanging the mails with numerous points in the hinterland lying far beyond the end of steel.

The principal means of mail transportation, however, is the railway-mail service which operates over about 40,000 miles of track and annually covers more than 47,000,000 miles. A staff of 1,296 railway-mail clerks sorts and exchanges the mails in the railway cars and in the steamships serving the coastal settlements of Newfoundland. Points in the Eastern Arctic receive the mails by ship and by mail-plane and a regular air service is operated as far as the Arctic Coast in the Northwest Territories. Aircraft courtesy flights also take letters and parcels into remote northern settlements.

Wherever population warrants, post offices are established for the transaction of every kind of postal business. Delivery is accorded by uniformed letter carriers in 135 cities and towns and an extensive organization distributes mail to rural districts. There are 5,322 rural mail routes in operation covering 125,000 miles of road and serving 440,000 rural mail boxes. Daily service is given over most of these routes which are generally circular in pattern and average 24 miles in length.

There are 4,039 side-services transporting mail between post offices, railway stations, wharves and airports, and 2,924 stage and motor-vehicle services operate either to post offices not situated on railway lines or supplement rail and other media of mail transport. In cities and larger towns there are some 770 services conveying the mails to and from sub post offices, postal stations and railway stations, collecting from street letter boxes and delivering parcel post. In all, approximately 13,060 land-mail service couriers travel about 50,000,000 miles annually. The land-mail services are performed under contract; contracts are awarded to the lowest tenderer who is required to provide all the requisite equipment.

It is estimated that 3,500,000,000 items of mail are delivered annually and, in order to cope with this volume, the Canada Post Office utilizes the most up-to-date mechanical handling devices. On Mar. 31, 1955, there were 11,796 post offices and 11,200 money-order offices in operation. For the year ended on that date, postage paid by means of postage stamps totalled \$74,583,720 and the gross postal revenue was \$151,717,272, the highest ever recorded. Combined deposits of \$36,780,666 were reported in the Post Office Savings Banks which are located throughout Canada.



*Gold bars placed in the vaults of the Bank of Canada are checked and double-checked.*



# Banking and Insurance

## • Banking

**T**HE Canadian banking system is a strong and stable structure with many outstanding features that have grown up since its foundations were laid more than a century ago. It consists of the Bank of Canada, which is a government-owned central bank, and nine privately owned commercial banks competing among themselves for the domestic and foreign banking business of the Canadian people. These institutions operate under the provisions of the Bank of Canada Act and the Bank Act both of which were amended during 1954.

The Bank of Canada is the keystone of the structure. Its chief function is to regulate the total volume of money and credit through changes in the cash reserves of the chartered banks. Each chartered bank is required to maintain, on the average during each calendar month, an amount of cash reserves, in the form of Bank of Canada notes and deposits with the Bank of Canada, equal to not less than 8 p.c. of its Canadian dollar deposit liabilities. The Bank may alter the percentage required, upon giving at least one month's notice, between 8 p.c. and 12 p.c. but cannot in any one month increase the percentage by more than one.

An increase in cash reserves above the required minimum encourages banks to expand their assets (mainly by purchasing securities and making loans) with a resultant similar increase in their deposit liabilities; a decrease in cash reserves tends to discourage expansion and may result in some contraction. Therefore, by taking steps to alter the volume of cash reserves available to the chartered banks, chiefly through open market purchases and sales of Government of Canada securities, the Bank of Canada is able to influence the total of chartered bank assets and the total of their Canadian dollar deposit liabilities. The deposit liabilities of the banks, except for those payable to the Government, are of course assets of the general public and together with currency comprise its most liquid assets.

The Bank acts as the fiscal agent of the Government of Canada, manages the public debt and has the sole right to issue notes for circulation in Canada. It is empowered to buy and sell securities on the open market, to fix minimum rates at which it will make advances and to buy and sell bullion and foreign exchange. The Bank is managed by a Board of Directors appointed by the Government and composed of a Governor, a Deputy Governor and twelve Directors; the Deputy Minister of Finance is a non-voting member of the Board.

The Industrial Development Bank, established in 1944, is a subsidiary of the Bank of Canada but operates as a separate entity. Its function is to supplement the activities of the chartered banks and other lending agencies by supplying the medium and long-term capital needs of small enterprises; the bank does not engage in the business of deposit banking. Current authorizations of loans, investments and guarantees of the Industrial Development Bank at Sept. 30, 1955, amounted to \$67,275,134 and amounts outstanding on the same date totalled \$45,370,729.



*Bank of Canada notes are printed at the rate of 360,000 a day. At the end of 1954, notes to the value of \$1,623,000,000 were in circulation.*

**Commercial Banking.**—There are nine commercial banks in Canada and their main function is to provide a safe repository for savings and to act as the principal source in Canada of short-term credit.

The commercial banks are referred to as “chartered” because they do business under a charter or licence from the Parliament of Canada. They receive this charter through the Bank Act, federal legislation which sets out what the banks can and cannot do and applies all across Canada. The charter extends for only ten years and the chartered banks, in effect, apply for renewal of their charters at the end of that period, when the Bank Act is revised, including public hearings before the Banking and Commerce Committee of the House of Commons. This decennial revision and the ten-year charters are unique to Canada.

The most recent decennial revision, the eighth since the passage of the Bank Act in 1871, was carried out in 1954. In keeping with the original intent of this periodic revision, the Bank Act was once again overhauled and brought into line with changing economic conditions and banking needs. This periodic revision helps to ensure that banking legislation in Canada is never static but is progressive, flexible and adaptable. The chartered banks, whose charters were renewed by Parliament in 1954 included the Bank of Montreal, The Bank of Nova Scotia, The Toronto-Dominion Bank, La Banque Provinciale du Canada, The Canadian Bank of Commerce, The Royal Bank of Canada, Banque Canadienne Nationale, Imperial Bank of Canada, Barclays Bank (Canada) and The Mercantile Bank of Canada. Barclays Bank has since been amalgamated with the Imperial Bank of Canada.

Canada has a branch bank system and has developed this type of banking to a greater extent than any other nation. Each chartered bank has a head office and numerous branches, most of the banks having branches scattered from coast to coast. This system enables the smallest, most remote

community to enjoy the same full range of banking services as the large metropolitan area. The branch bank is a self-contained unit, although it operates under the general supervision of its head office, and is backed by the strength, knowledge and experience of the entire institution of which it is a part. Excess funds from branches where deposits exceed loan potentials are credited to head office, which, in turn, makes them available to branches where lending funds are needed. In this way there can be no dearth of credit through lack of local funds.

At the end of 1955, there were 4,246 bank branches throughout Canada, and 123 in foreign countries, mostly in the United States, Great Britain, the West Indies and South America. In addition, the chartered banks have agents or correspondents throughout the world, facilitating Canada's world-wide trade.

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The chartered banks are combined savings and commercial banks. They are extremely competitive, not only for deposit and lending business but in the opening of new branches in both established areas and in the more remote settlements. Keeping pace with an expanding Canada, more than 1,000 branches were opened in the past ten years. Canada has a heavier concentration of banking facilities in relationship to population than any other country.

The chartered banks are privately owned, latest figures showing 77,153 shareholders, of whom 74.4 p.c. were Canadians owning 73.7 p.c. of the shares. The wide diffusion in bank ownership is shown by the fact that 90 p.c. of all bank shareholders have 500 shares or fewer. A recent survey by one bank showed more than 250 occupations represented among its shareholders.

The various chartered banks have histories of sound and steady growth over the years, the oldest dating from 1817. At Confederation (1867) there were 28 chartered banks. Casualties, absorptions and mergers have reduced that number to nine, strengthening the banking system even further. The last insolvency of a Canadian bank was in 1923.

Although the chartered banks are subject to close regulation by federal authorities, they are uncontrolled in their day-to-day affairs. They are under the authority of the Minister of Finance, whose link with them is as an official of the Department of Finance, the Inspector General of Banks. He has the responsibility of inspecting the books of each bank at least once a year and he may do so oftener. This inspection is in addition to that carried out by auditors appointed by the shareholders of each bank, and to whom the auditors report. In addition, a continuous audit of the operations of each bank and its branches is carried out by the bank's own inspection staff.

The lending field occupied by the chartered banks is essentially short-term. Banks extend credit to producers, industry, institutions, municipalities, corporations, governments and to tens of thousands of individuals for a multitude of purposes. The banks provide the working capital rather than fixed capital—the money to meet payrolls, to buy raw materials, process them and market them, rather than the money to build the factory. Bank loans are



Canadians had more than \$11,000,000,000 on deposit in the chartered banks in Canada on Sept. 30, 1955

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seldom over a year in length. The latest analysis of bank loans on Dec. 31, 1955, shows total loans in Canada (excluding residential mortgage loans under the National Housing Act) of \$4,971,200,000 and of these, \$3,322,800,000 were for agricultural, industrial and commercial purposes. Loans to individuals totalled \$966,100,000.

### Statistics of Individual Chartered Banks, Sept. 30, 1955

Bank	Branches in Canada and Abroad <sup>1</sup>	Total Assets	Liabilities to Shareholders	Liabilities to the Public	Loans and Discounts <sup>2</sup>	Total Deposit Liabilities <sup>3</sup>
	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Bank of Montreal..	656	2,726,318	137,611	2,124,845	999,916	2,508,325
Bank of Nova Scotia.....	475	1,143,995	50,524	860,979	617,605	1,056,829
Bank of Toronto Dominion Bank..	449	1,264,345	46,877	1,086,002	572,931	1,180,887
Banque Provinciale du Canada..	349	246,350	8,335	216,300	108,366	235,398
Canadian Bank of Commerce....	711	2,281,098	101,799	1,755,696	997,216	2,097,621
Royal Bank of Canada.....	848	3,237,637	147,504	2,246,343	1,255,020	2,931,861
Banque Canadienne Nationale.....	576	609,482	18,148	531,071	278,289	585,401
Imperial Bank of Canada.....	255	787,757	33,034	626,995	375,130	728,799
Clays Bank (Canada) <sup>4</sup> .....	6	43,116	6,309	23,637	11,314	28,216
Mercantile Bank of Canada..	3	12,450	1,901	2,215	4,124	4,956
<b>Totals....</b>	<b>4,328</b>	<b>12,352,548</b>	<b>552,042</b>	<b>9,474,083</b>	<b>5,219,911</b>	<b>11,358,293</b>

<sup>1</sup> Includes sub-branches and sub-agencies.

<sup>2</sup> Includes mortgages and hypothecs insured under the National Housing Act, 1954.

<sup>3</sup> Excludes inter-bank deposits.

<sup>4</sup> Amalgamated with the Imperial Bank of Canada, Feb. 1, 1956.

## • Insurance

**Life Insurance.**—Life insurance business in Canada in 1954 continued the increasing rate of expansion in evidence particularly since the end of World War II. During 1954, new insurance business written, including industrial, group and fraternal insurance, amounted to \$2,986,000,000, which brought the total life insurance in force in Canada at the end of the year to \$24,771,000,000. This represents an average of \$1,630 of insurance protection for every man, woman and child in the country. The amount of premiums paid to carry this insurance was \$521,000,000.

Total benefits paid during the year to policyholders, including death claims, matured endowments, disability claims, dividends, surrender values and annuity payments were \$320,000,000. Of this amount, death benefits amounted to nearly \$120,000,000, which means that close to \$200,000,000 was returned in benefits to living policyholders. There has been a continuing and growing interest on the part of Canadians in pension planning and personal retirement programs. Annuity contracts, for example, numbered about 400,000 in 1954 and represent a present and future income to Canadians of more than \$341,000,000 a year. The important factor in this rapid growth is the increasing interest in group annuities among employers and their employees, which have increased more than 600 p.c. since 1945 and now account for four-fifths of the total annuities in force.

Life insurance in Canada is actively transacted by 66 companies and 41 societies registered by the Federal Government, of which 31 companies and 16 societies are Canadian, 6 companies are British, and 29 companies and 25 societies are foreign. There are also 12 companies and about 45 societies operating under provincial licence only.

**Fire Insurance.**—The growth of the fire insurance business has also been substantial and, though a good part of this growth may be attributed to the increase in the practice of insurance, it is also indicative of the advance in the amount and value of insurable property throughout the country. Fire insurance in force at the end of 1954 amounted to approximately \$50,000,000,000, premiums written amounted to \$169,000,000, and claims paid to \$80,000,000. These figures include the business of 301 companies registered by the Federal Government to transact fire insurance business in Canada (75 Canadian companies, 89 British and 137 foreign) as well as a number of provincially incorporated companies and Lloyds of London.

**Casualty Insurance.**—Casualty insurance includes: accident (personal accident, employers' liability and public liability); sickness; aircraft; automobile; boiler; credit; earthquake; explosion; falling aircraft; forgery; guarantee; hail; impact by vehicles; inland transportation; livestock; personal property; plate glass; real property; sprinkler leakage; theft; water damage; weather; and windstorm. Premiums written for all classes of casualty amounted to \$378,000,000 in 1954. In that year there were 322 companies registered by the Federal Government to transact casualty business in Canada, of which 80 were Canadian, 84 British and 158 foreign. The majority of these companies also reported fire business. The figures for 50 provincially incorporated companies and Lloyds are also included.





*Edmonton, capital city of Alberta, grown up in the centre of a rich, healthy and productive agricultural area, has recently become the focus of Canada's vast multi-million-dollar oil, gas and petro-chemical developments. Its geographical position has given it added importance as the hub of air travel into the frontier areas of the far north and across the top of the world to European centres. Nearly half Alberta's complement of 1,066,000 persons live within 100 miles of the city.*



George Hunter

*Steel is the universal raw material, the common denominator of industry. Algoma Steel Corporation at Sault Ste. Marie, Ont., is one of the four fully integrated basic steel companies operating in Canada.*



# The Economy in 1955

THE year 1955\* witnessed a sharp recovery from the mild contraction in economic activity which had characterized the period from mid-1953 to mid-1954. Output of goods and services began to rise in the latter part of 1954 and expanded rapidly throughout 1955. For the year as a whole the value of output was approximately 10 p.c. higher than for the full year 1954. Thus, the gross national product advanced to \$26,400,000,000 in 1955 from the \$24,000,000,000 recorded for the previous year. With prices relatively stable, this increase reflected almost entirely an expansion in the volume of production which showed the largest gain of any single post-war year. It may be recalled that in 1954, while the volume of output declined by 3 p.c., some increases in the labour force and productive capacity were taking place. It was these developments that made possible the very sharp increase in the volume of output in 1955. The increase over 1953, which was the previous peak year in terms of volume of production, is estimated at about 6 p.c.

A number of expansionary factors contributed to the growth in 1955. The larger grain crop accounted for about \$300,000,000 of the gain in gross national product. Personal expenditure on consumer goods and services led the advance in final purchases with a gain of \$1,300,000,000, while exports rose by approximately \$700,000,000. Gross domestic investment in durable assets and government expenditures together absorbed an additional \$600,000,000. Finally, the swing in business inventories from liquidation a year previously to net accumulation in 1955 amounted to \$400,000,000. It was under these stimuli that Canadian production rose at an uninterrupted pace through 1955, although a considerable part of both final and inventory demand was for imported commodities which advanced more than \$700,000,000 over the 1954 total. Associated with these developments in domestic and foreign demand was a marked expansion of Canadian personal incomes, a rising level of activity in the United States coupled with prosperity abroad, and a sharp rise in incomes of Canadian businesses.

This strength in end-product demand in 1955 is reflected in the expansion of most of the industrial sectors, where production increases over 1954 were both widely dispersed and substantial in size. In manufacturing, important increases occurred in almost all of the groups that had been affected by the earlier contraction in activity, including iron and steel products, electrical apparatus and supplies, and textiles. However, the rate of expansion in the various sub-groups was uneven and certain industries remained below the level of output they achieved in 1953. Among these groups were clothing and textiles, and agricultural implements.

Activity in the construction industry and in the services group taken as a whole continued its upward trend, with gains of about 7 p.c. in 1955. In the primary industries group, a large increase was indicated for agriculture while forestry, public utilities and mining showed increases ranging from 9 to 15 p.c.

\* Figures given for the full year 1955 are based, for the most part, on nine-month data available at the time of writing.





Women in employment in Canada are predominantly clerical and vice versa occupations. These telegraph in-training high standards speed and accuracy before assignment to operating positions the CNR communications system.

## Employment

A substantial increase in employment accompanied the rise in the tempo of economic activity in 1955 and unemployment declined. At the end of the year (November) the number of persons with jobs was about 4 p.c. higher than at the same date of 1954. The number of persons with jobs in the non-agricultural sector of the labour force was up 7 p.c. and, at the same time, the average hours worked per week in manufacturing increased. The number of persons without jobs and seeking work in Canada was almost 25 p.c. below the level of November 1954.

## Prices

Prices on the average were relatively stable during the course of 1955. However, prices of non-agricultural primary materials had begun to edge upward while agricultural prices continued to decline. In particular, prices of non-grain export products, especially of non-ferrous metals, were higher and the export price index rose by 3 p.c. As the price of imported goods remained fairly stable, there was an improvement in Canada's terms of trade during the year. Construction material prices also increased somewhat in 1955. The continued decline in agricultural prices reflected the large stocks of grains and ample supplies of other agricultural products in Canada and abroad. The wholesale price index rose slightly during the year but the consumer price index showed little change.

## National Income

National income expanded without interruption throughout 1955, reflecting for the most part further gains in wages and salaries and in investment income, including corporation profits. The successive quarter-to-quarter gains in these two important income categories accounted for the greater part of the enlarged flow of income over the course of the year. Thus wages and salaries were approximately 8 p.c. above the level of 1954, while investment income was about 20 p.c. higher. At the same time, account

must be taken of the important increase in net income of farm operators as a result of the higher crop production in 1955. National income as a whole in 1955 was approximately 10 p.c. above the previous year.

The increase in personal income in 1955 was substantial, although it was somewhat less than the rise in national income, largely because the increase in dividend payments was more moderate than the gain in corporation profits. Personal saving was higher in 1955, the increase over the previous year reflecting in part the higher grain crop.

The gain in wages and salaries was a reflection of a 4-p.c. increase in the number of paid workers with jobs, together with a 5-p.c. advance in average weekly earnings in the major non-agricultural industries. Total wages and salaries in primary industries, manufacturing, and the trade group advanced by between 4 and 6 p.c., while finance, services and construction registered gains of between 9 and 12 p.c. Since the consumer price index changed very little in 1955, these increases in labour income represented almost completely a gain in "real" terms, and constituted one of the sharpest advances in real earnings in the post-war period.

The main contributing factor in the rise in investment income in 1955 was the gain of more than 20 p.c. in corporation profits. Almost all industrial groups shared in this rise. Other components of the investment income, such as net rental income received by persons and profits of government business enterprises, were also higher in 1955.

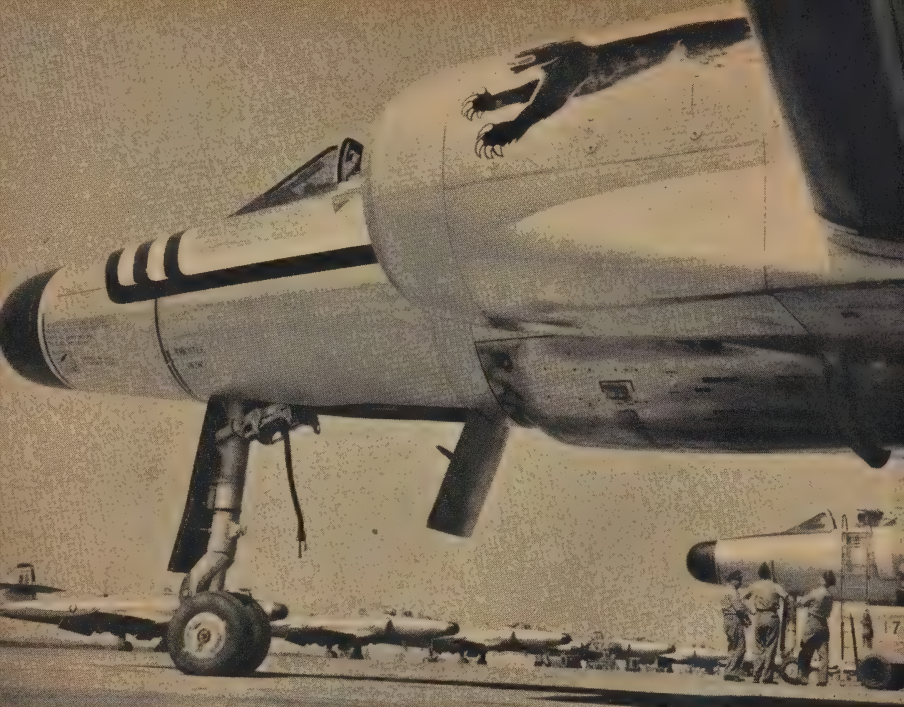
Accrued net income of farm operators from farm production was \$1,400,000,000 in 1955, compared with \$1,100,000,000 in 1954. This increase reflected for the most part a larger grain crop, which in 1955 mainly took the form of additions to stocks of grain held on farms. Hence, although the rise in production was sharp, sales of grain off farms showed little change, with the result that farm cash income was about level with the previous year.

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*Canada's largest oil refinery at Sarnia, Ont., has a crude oil capacity of 2,730,000 gal. a day. The crude is transported by pipeline from Alberta.*







*Defence outlays did not constitute an expansionary influence on the economy in 1955 but did provide a sustaining element. The RCAF set a high record of achievement during the year. Apart from its continuing duties of patrolling, transport, training and re-supply, the long-term project of establishing nine CF-100 squadrons for home defence was accomplished; 12 squadrons are on duty in France and Germany.*

## **Gross National Expenditure**

Consumer expenditures were the major expansionary factor in the economy in 1955, rising by about \$1,000,000,000 over 1954. Housing outlays were also an important stimulus with an increase of \$300,000,000 over the previous year; this latter gain represents a rise of about 26 p.c. over 1954 and is the largest single percentage increase of any major expenditure component. It may be noted that both consumer outlays and residential construction were very strong supporting elements during the course of the mild contraction from mid-1953 to mid-1954, when they continued to rise at an uninterrupted rate. This strong upward trend was reinforced in 1955. Exports of goods and services, which had declined by about 5 p.c. in 1954, rose very sharply in 1955, reflecting the recovery in the United States and strong overseas demand for Canadian products; the gain in exports over 1954 was of the order of \$600,000,000. Business investment in new plant, equipment and machinery also rose in 1955 over the previous year. These segments of demand had been relatively stable following the declines of late 1953 and early 1954, but in 1955 a marked recovery began, associated in part with the pressure of demand on existing capital facilities, sharply increased profits, and a generally favourable business environment.



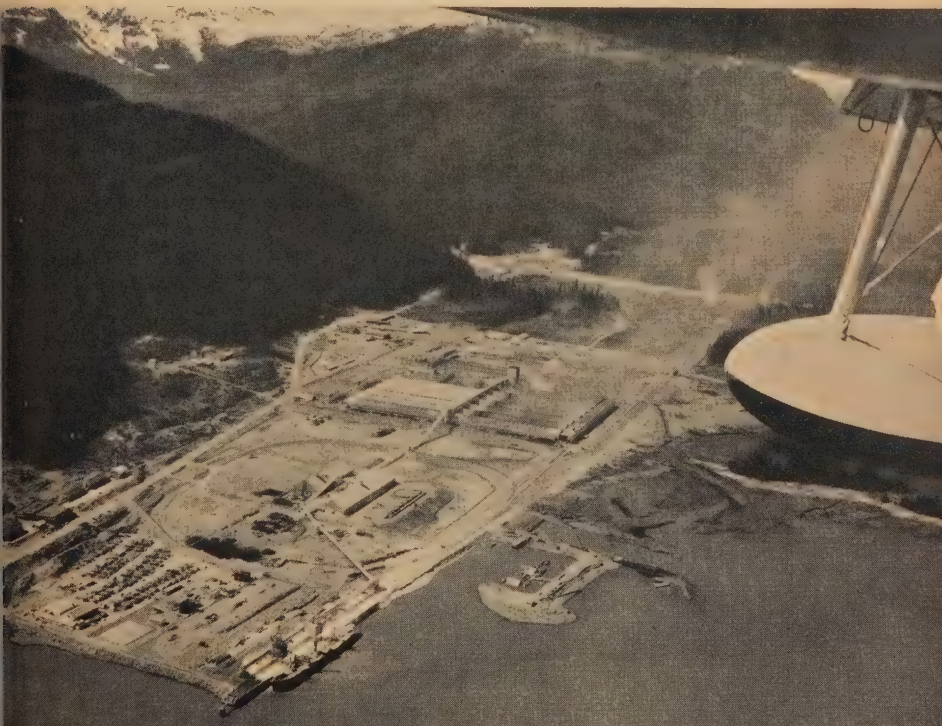
The most significant increase in consumer expenditure took place in the durable goods group which rose 14 p.c. over 1954. Some of the most striking advances occurred in the following items: new passenger cars, unit sales of which were up by 21 p.c.; refrigerators, shipments of which increased by 17 p.c.; washing machines, with a 21-p.c. increase in shipments; and television sets, up by 32 p.c. The gain in consumer durable goods was accompanied by an increase in consumer credit outstanding; figures for the third quarter indicate a rise of 15 p.c. over the same period of 1954. This compares with an 8-p.c. increase in personal disposable income.

Non-durable goods purchases were approximately 5 p.c. higher in 1955; gains of about the same magnitude occurred in the sales of food and tobacco and in alcoholic beverages but purchases of clothing showed only a small increase. Consumer outlays for services were about 6 p.c. higher in 1955, continuing the upward trend of recent years. Taking durables, non-durables and services together, total consumer outlays in 1955 were about 6 p.c. above the previous year.

The level of residential building construction in 1955 amounted to close to \$1,500,000,000 compared with \$1,200,000,000 in 1954. Most of the increase represented a real volume gain, although house-building costs rose moderately, especially in the latter half of the year. There were about 128,000 housing

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*Construction is under way to expand the capacity of the Kitimat Aluminum Smelter from the present 91,500 tons a year to 240,000 tons by 1959. The ultimate annual capacity of the project is 550,000 tons.*





*Federal Government geologists, using helicopters, mapped 100,000 sq. miles of territory in the Queen Elizabeth Islands and 60,000 sq. miles in the District of Mackenzie in the Northwest Territories during the summer of 1955. The use of aircraft is greatly expediting the Geological Survey's project of reconnaissance mapping of Canada's Far North.*

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units completed during the year and it is estimated that the carry-over of uncompleted units into 1956 numbered about 80,000.

As has been noted, 1955 marked a renewal of the expansion in business investment for new plant, machinery and equipment. Business non-residential construction outlays were somewhat above the previous year's level of \$1,700,000,000, though some part of this increase was accounted for by price gains. Machinery and equipment outlays at year-end were running at the highest level since the down-turn in late 1953. Associated with this pick-up were gains in business purchases of motor-vehicles and a sharp increase in imports of machinery. On the whole, there was little price movement in machinery items in 1955.

Purchases of goods and services by all levels of government rose moderately in 1955, reflecting higher outlays for salaries and wages at all three levels of government, higher defence expenditures, higher provincial highway construction, and the expansion of municipal facilities associated with the high level of house-building activity. Defence outlays did not constitute a major expansionary influence in 1955, but continued to provide an important sustaining element.

The liquidation of business inventories which had been a characteristic feature of the contraction in activity in 1954 was halted in 1955 and some accumulation of stocks occurred. However, it appears that the build-up of business inventories in 1955 was quite small, because the gain in production during the year was approximately matched by the higher levels of end-product demand. With the rapid expansion in final purchases, and the relative stability in inventory holdings, the ratio of stocks to sales fell off

during 1955. It may be noted that such a low rate of business inventory accumulation during a period of rapid general expansion in activity is in contrast to the general pattern of the post-war years when similar periods of expansion were usually marked by a substantial build-up of stocks. The relatively small build-up of business inventory stocks in 1955 was accompanied by a larger accumulation of grain inventories than in the previous year, associated with the higher volume of crop production.

The demand for Canadian exports rose an estimated 12 p.c. in 1955, as a result of prosperous conditions prevailing in the United States and strong overseas demand for Canadian products. The strength in exports was derived mainly from non-grain primary products such as non-ferrous metals and wood and wood products. Exports related to the development of new mining and industrial capacity, such as petroleum, chemicals and iron ore, also showed substantial gains over the previous year. The gain in exports of non-ferrous metal products was partly accounted for by significant price increases in 1955.

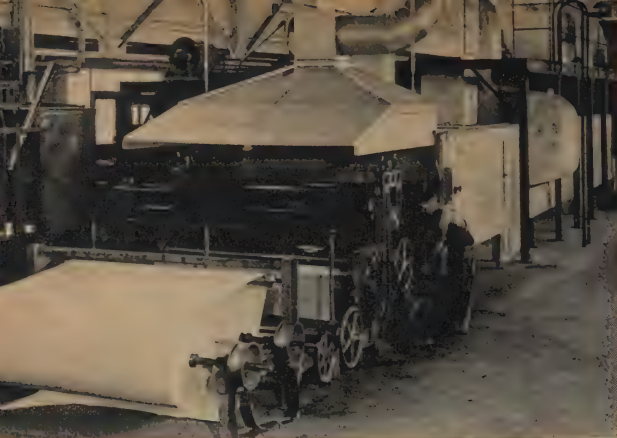
Imports also moved sharply upward in 1955 and were much higher than in the previous year, showing particularly large gains in the closing months of the year. The gain in imports was fairly widespread and was associated with the very rapid expansion in end-product demand and in business conditions generally in Canada. In particular may be noted the rising levels of demand for consumer durable goods in 1955, and gains in investment in new machinery.

The deficit on current account was considerably larger in 1955 than in 1954. There was an abnormal deficit on commodity account in the final quarter of the year and another part of the increase was accounted for by the invisible items. The deficit from the latter rose as gains in receipts from tourist and travel expenditures, and interest and dividends from non-residents were more than offset by larger payments on these items. As has been noted earlier, there was an improvement in Canada's terms of trade in 1955, as import prices remained relatively stable while export prices showed a moderate advance.

## **Production**

An analysis of Canadian production by industry indicates that the volume of output of Canada's primary industries was about one-fifth higher in 1955 than in 1954. Much of this increase was the result of the excellent grain crops in 1955. Other primary industries, with the notable exception of fishing, also registered substantial increases in production. The output of the forest industry rose almost 9 p.c. compared with 1954. Contributing largely to this advance was the sharp rise in the demand for lumber accompanying the large increases in house building and in board and plank exports. Production of pulpwood, however, increased only moderately. Mining activity continued to expand sharply and registered a gain of almost 15 p.c. over the high levels of 1954. The output of gold, copper, nickel and zinc was up substantially. Producers' shipments of iron ore in 1955 were almost triple those of 1954. Crude-oil production continued to expand rapidly during the year and was over 30 p.c. higher than in the preceding year. By contrast, however, the output of lead and silver was somewhat lower and the production of coal continued to decline. Reflecting the increased activity in house building, the output of non-metallic minerals and their products rose by 13 p.c.



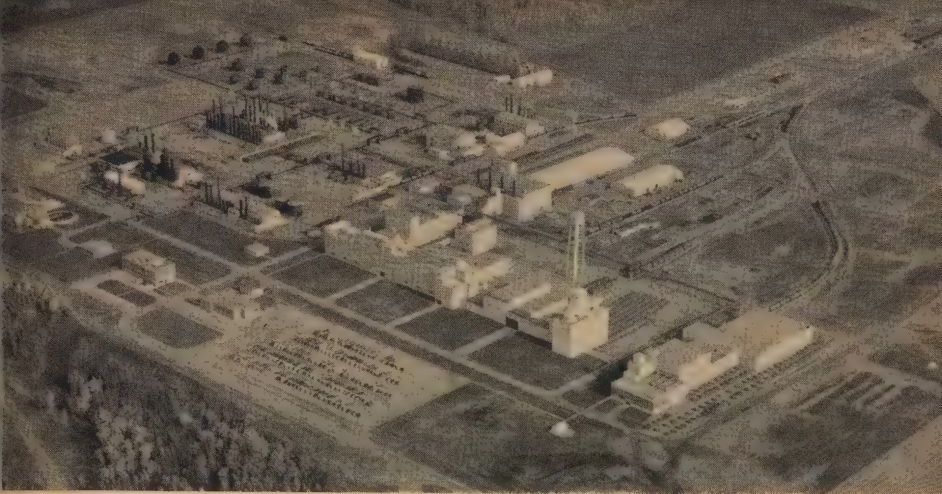


Petro-chemicals, the fastest growing branch of the chemical industry, has sprung up from virtual non-existence fifteen years ago to a \$300,000,000 string of sixteen plants today. Their output is providing more and more of the basic raw materials for every major industry in the country and their end-products are in familiar use everywhere.



Products range from laminates for table and desk tops to wall and floor coverings, cable insulation, synthetic fibres for clothing, and toys.





*Canada's biggest post-war chemical venture is the \$75,000,000 plant at Edmonton. It uses as raw material high alpha pulp from British Columbia and Alberta's petroleum gases and it produces about a dozen industrial chemicals, cellulose acetate, acetate staple fibre and filament yarn.*

over 1954. Public utility production also rose substantially during 1955. Central electric stations generated about 12 p.c. more power than in the preceding year while gas consumption rose only moderately. Production in the fishing industry was lower by about 10 p.c. in 1955. Most of this decline occurred in the Pacific area where there were very sharp decreases in the landings of sockeye and chum salmon as well as of herring and halibut. Landings in the Atlantic Provinces were down only slightly.

Manufacturing output rose by 7 p.c. recovering sharply from its lower levels in 1954. Gains were widespread, production of durable and non-durable goods rising 8 and 6 p.c., respectively. Within non-durable manufacturing, the output of the food-producing industries rose by 3 p.c. despite the dampening effect of decreased grain-mill activity. The production of beverages, textiles and tobacco, rubber, petroleum and paper products rose substantially but increased activity in the clothing, printing and publishing and chemical industries was more moderate. The gains among the durable goods industries were quite large although the transportation equipment group of industries registered a small decline. Output of motor-vehicles rose by 29 p.c. despite the disrupting effect of labour disputes. Production in other major industries within the transportation equipment section—shipbuilding, aircraft and railway rolling-stock—was down sharply, thus more than offsetting the gain in motor-vehicle production. Within the electrical apparatus group of industries the production of television sets continued to expand sharply, being up over 60 p.c. from 1954's high level of output. The production of primary iron and steel products, reflecting the increased industrial tempo, was up almost 40 p.c. Output of both non-ferrous metal and non-metallic mineral products was up 13 p.c. compared with 1954.

Construction rose about 6 p.c. over the year; most of this increase was accounted for by the rise of about 25 p.c. in the volume of house-building activity. Non-residential construction showed very little change.



Reflecting the higher levels of consumer expenditure, the trade industry showed an increase of 7 p.c. over 1954 in volume of output. All retail trades shared to some extent in this expansion; department and variety stores along with motor-vehicle dealers, garages and filling stations and appliance and radio dealers registered the largest advances.

Activity in the transportation, storage and communication group of industries rose by almost 12 p.c. despite declines in urban and inter-urban transportation and grain elevator service. The latter decline reflects decreased shipments of grain for export and for commercial mill use in Canada. Steam railway freight traffic was up by about 16 p.c. over the year as a result of advances in commodity production and imports; of particular importance was the increased shipments of mine and forest products. Air transportation, shipping and oil pipeline operation were also up substantially. The increase in air transportation was effected through the steady and rapid growth of Canada's scheduled air lines and also the recent expansion of non-scheduled air lines resulting from increased traffic connected with resource development and continental defence in Canada's northern reaches. Television broadcasting services continued to expand rapidly in keeping with increased demand.

During 1955 the finance, insurance and real estate group of industries showed further advances estimated at about 4 p.c. Activity in government and other services also continued to increase. Increased provincial government services were affected by an epidemic of forest fires, particularly in the eastern provinces, which required heavy expenditure for fire-fighting purposes.



The volume of house building was about 25 p.c. higher in 1955 than in 1954. Co-operative housing ventures permit families with moderate incomes to build and finish their own homes.



Education, hospital and other health services were also higher in an effort to meet the needs of a growing population and a higher standard of living.

### *National Income, Gross National Product and Gross National Expenditure, by Quarters, 1954 and 1955*

(Millions of Dollars)

NOTE.—To facilitate comparisons between quarters and to indicate at what levels the various sectors of the economy are operating, the data have been adjusted for seasonal variation. That is, the average amount that activity normally rises or falls as a result of changing seasons (e.g., purchases of coal, summer clothing, Christmas gifts) has been eliminated, so that the underlying movements stand out more prominently.

Item	1954					1955		
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year	First Quarter	Second Quarter	Third Quarter
<b>Income</b>								
Wages, salaries and supplementary labour income.....	11,768	11,936	12,080	12,172	11,989	12,284	12,732	13,104
Military pay and allowances.....	332	368	380	388	367	372	400	404
Investment income.....	3,668	3,708	3,656	3,828	3,715	3,940	4,512	4,668
Accrued net income of farm operators from farm production.....	1,148	1,068	1,008	1,008	1,058	1,344	1,428	1,308
Net income of non-farm unincorporated business.....	1,616	1,624	1,652	1,688	1,645	1,672	1,716	1,740
<b>Net National Income at Factor Cost.....</b>	<b>18,532</b>	<b>18,704</b>	<b>18,776</b>	<b>19,084</b>	<b>18,774</b>	<b>19,612</b>	<b>20,788</b>	<b>21,224</b>
Indirect taxes less subsidies.....	2,904	2,984	2,884	2,884	2,914	3,052	3,164	3,232
Depreciation allowances, and similar business costs.....	2,420	2,544	2,536	2,544	2,511	2,564	2,672	2,708
Residual error of estimate	16	-272	-248	-128	-158	-36	-252	-296
<b>Gross National Product at Market Prices.....</b>	<b>23,872</b>	<b>23,960</b>	<b>23,948</b>	<b>24,384</b>	<b>24,041</b>	<b>25,192</b>	<b>26,372</b>	<b>26,868</b>
Gross national product at market prices excluding accrued net income of farm operators.....	22,724	22,892	22,940	23,376	22,983	23,848	24,944	25,560
<b>Expenditure</b>								
Personal expenditure on goods and services....	15,376	15,600	15,812	15,916	15,676	16,004	16,660	16,984
Government expenditure on goods and services....	4,224	4,312	4,472	4,436	4,361	4,472	4,620	4,768
Gross Domestic Investment—								
New residential construction.....	1,084	1,092	1,200	1,288	1,166	1,288	1,448	1,504
New non-residential construction.....	1,676	1,640	1,716	1,672	1,676	1,620	1,636	1,808
New machinery and equipment.....	1,772	1,756	1,708	1,608	1,711	1,604	1,824	1,948
Change in inventories.....	172	-428	-808	-56	-280	500	308	104
<i>Business inventories only.....</i>	<i>300</i>	<i>-356</i>	<i>-460</i>	<i>36</i>	<i>-120</i>	<i>364</i>	<i>28</i>	<i>36</i>
Exports of goods and services.....	5,060	5,156	5,148	5,180	5,136	5,604	5,624	5,940
Less: Imports of goods and services.....	-5,472	-5,440	-5,548	-5,788	-5,562	-5,936	-6,000	-6,484
Residual error of estimate	-20	272	248	128	157	36	252	296
<b>Gross National Expenditure at Market Prices.....</b>	<b>23,872</b>	<b>23,960</b>	<b>23,948</b>	<b>24,384</b>	<b>24,041</b>	<b>25,192</b>	<b>26,372</b>	<b>26,868</b>

# Source and Disposition of Personal Income, by Quarters, 1954 and 1955

(Millions of Dollars)

NOTE.—See headnote to table on p. 309.

Source and Disposition	1954					1955		
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Year	First Quarter	Second Quarter	Third Quarter
<b>Source</b>								
Wages, salaries and supplementary labour income.....	11,768	11,936	12,080	12,172	11,989	12,284	12,732	13,104
Less: Employer and employee contributions to social insurance and government pension funds.....	-376	-396	-404	-404	-395	-396	-412	-420
Military pay and allowances.....	332	368	380	388	367	372	400	404
Net income received by farm operators from farm production <sup>1</sup> .....	1,172	1,112	908	1,148	1,085	1,260	1,496	1,256
Net income of non-farm unincorporated business.....	1,616	1,624	1,652	1,688	1,645	1,672	1,716	1,740
Interest, dividends and net rental income of persons.....	1,760	1,812	1,840	1,888	1,825	1,988	1,952	1,996
Transfer Payments to Persons—								
From government (excluding interest)....	1,608	1,608	1,564	1,624	1,601	1,776	1,728	1,628
Charitable contributions by corporations.....	28	28	28	28	28	24	40	36
Net bad debt losses of corporations.....	28	28	28	28	28	24	28	28
<b>Personal Income.....</b>	<b>17,936</b>	<b>18,120</b>	<b>18,076</b>	<b>18,560</b>	<b>18,173</b>	<b>19,004</b>	<b>19,680</b>	<b>19,772</b>
<b>Disposition</b>								
Personal Direct Taxes—								
Income taxes.....	1,264	1,228	1,352	1,316	1,290	1,316	1,236	1,320
Succession duties.....	68	68	76	96	77	84	92	92
Miscellaneous.....	64	60	56	56	59	76	72	72
<b>Total Personal Direct Taxes.....</b>	<b>1,396</b>	<b>1,356</b>	<b>1,484</b>	<b>1,468</b>	<b>1,426</b>	<b>1,476</b>	<b>1,400</b>	<b>1,484</b>
Personal Expenditure on Consumer Goods and Services—								
Non-durable goods....	8,720	8,860	8,912	9,028	8,880	8,988	9,324	9,408
Durable goods.....	1,728	1,656	1,728	1,616	1,682	1,696	1,936	2,100
Services.....	4,928	5,084	5,172	5,272	5,114	5,320	5,400	5,476
<b>Total Personal Expenditure on Consumer Goods and Services.....</b>	<b>15,376</b>	<b>15,600</b>	<b>15,812</b>	<b>15,916</b>	<b>15,676</b>	<b>16,004</b>	<b>16,660</b>	<b>16,984</b>
Personal Saving—								
Personal saving excluding farm inventory change.....	1,384	1,376	888	1,216	1,216	1,424	1,464	1,268
Farm inventory change.....	-220	-212	-108	-40	-145	100	156	36
<b>Total Personal Saving....</b>	<b>1,164</b>	<b>1,164</b>	<b>780</b>	<b>1,176</b>	<b>1,071</b>	<b>1,524</b>	<b>1,620</b>	<b>1,304</b>
<b>Personal Income.....</b>	<b>17,936</b>	<b>18,120</b>	<b>18,076</b>	<b>18,560</b>	<b>18,173</b>	<b>19,004</b>	<b>19,680</b>	<b>19,772</b>
Personal disposable income <sup>2</sup> .....	16,540	16,764	16,592	17,092	16,747	17,528	18,280	18,288

<sup>1</sup> This item differs from item 4 in the table on p. 309 in that it excludes undistributed earnings (and the inventory adjustment) of the Canadian Wheat Board. <sup>2</sup> Personal income less total personal direct taxes.



*There is a definite trend towards the decentralization of industry in Canada, which is a benefit both to the plant and to the community. More even distribution of labour opportunities results in greater stabilization of income, wider spread markets and generally better living conditions.*



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CANADA  
DEPARTMENT OF  
MINES AND TECHNICAL SURVEYS  
SURVEYS AND MAPPING BRANCH

# CANADA

SCALE 1:10 000 000 OR ONE INCH TO 250 MILES

1:10 000 000  
1:10 000 000

Federal Capital  
Railway Main  
Railway, North P.E.I.  
Trans-Canada N.E. Line  
Other Air Lines

• District Capital •

• District Capital •

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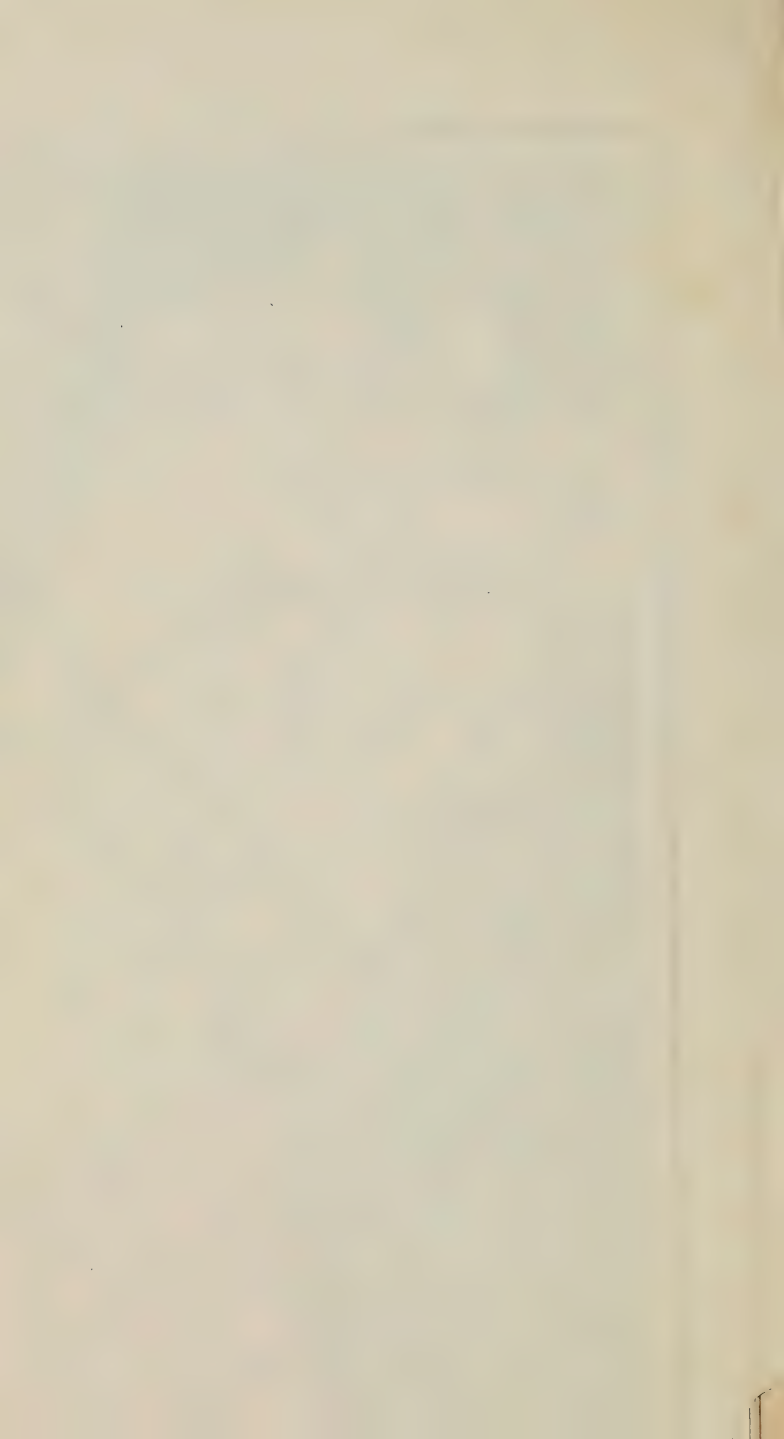
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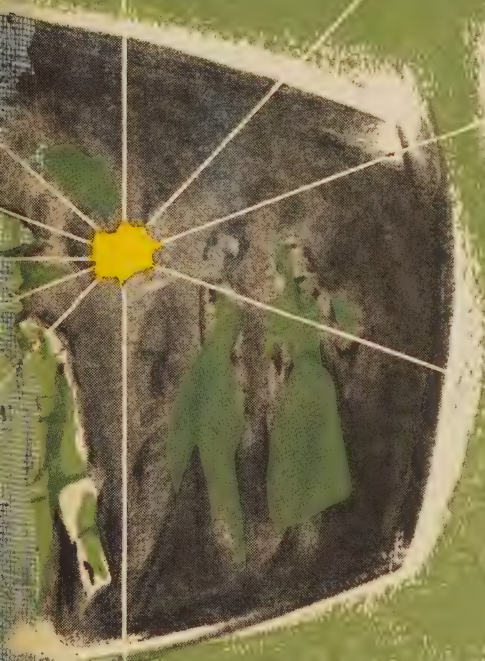
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**Canada 1957**





**F**IX your eyes on the greatness of your country as you have it before you day by day, fall in love with her, and when you feel her great, remember that her greatness was won by men with courage, with knowledge of their duty, and with a sense of honour in action, who, even if they failed in some venture, would not think of depriving the country of their powers but laid them at her feet as their fairest offering.

*Pericles*



Ram River, Alberta,  
by Richard Harrington

*"Here life springs glad and free and rude, and I  
Shall drink it to the full, and go content."*





Prepared in the  
CANADA YEAR BOOK SECTION  
INFORMATION SERVICES DIVISION  
DOMINION BUREAU OF STATISTICS  
Ottawa

The Official Handbook  
of Present Conditions  
and Recent Progress

PUBLISHED UNDER  
THE AUTHORITY OF  
THE RIGHT HON. C. D. HOWE  
MINISTER OF TRADE AND COMMERCE

# Canada 1957

PRICE \$1.00

662041

16.7.57

ÉDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1957

## Foreword

THE illustrated Canada Handbook offers to the Canadian public and to the peoples of other lands a factual, annual survey of the Canadian economy set in a statistical background and illuminated with illustrations of the recent economic, social and cultural development of the nation. In text and tables, in layout and illustrations, *Canada 1957* seeks to portray the present conditions of the Canadian people, their richly endowed resources, their democratic institutions and way of life, and their dynamic economy.

Apart from its special features, *Canada 1957* draws on the same official sources of the Dominion Bureau of Statistics and the various departments of the Government of Canada that contribute to the larger reference volume, the *Canada Year Book*. The illustrations are selected from a wide range of governmental, commercial, press and private sources.

*Canada 1957* is produced in the Canada Year Book Section of the Information Services Division—Miss M. Pink, Assistant Editor and Chief of the Section; Dr. C. C. Lingard, Editor and Director of the Division.

*Walter E. Duffett.*

Dominion Statistician

Dominion Bureau of Statistics,  
Ottawa, April 17, 1957.





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# Acknowledgments

Grateful acknowledgment is made to all those who supplied information for this publication. Special thanks are extended to Mr. Walter B. Herbert of The Canada Foundation for the preparation of material on "Cultural Relationships". The art work for the cover, title page and section headings was executed by the House of Engravers, Toronto.

Acknowledgment is also made to the following sources for assistance in supplying photographic material:—

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*The historic beginnings of settlement on the mainland of Canada and of its expansion westward are associated with the name of Samuel de Champlain, model explorer and colonizer, dedicated to the ideal of nation-building in the vast expanses of a New World. Shifting his base from Acadia to Quebec in 1608, he and his followers swept up the St. Lawrence-Great Lakes waterways and tributaries and westward to Lake Huron with brilliant vision. Later generations of Canadian and British explorers and fur traders pursued the same vision in laying the geographical foundation of this great free nation of the North "a mari usque ad mare".*

# THIS NATION OF CANADA



**T**HIS nation of Canada—ten Provinces and two vast Territories extending over an area second only in size to that of its neighbour across the polar regions—may be considered in some respects unique among the nations of the world. Its fascinating story extends back at least four centuries, to the time when the abundant cod fisheries off the Grand Banks first linked the stream of north-western European civilization to the Labrador-Newfoundland projection of the North American Continent. The geographical framework of this vast northern political entity, which the 'Fathers of Confederation' fashioned with consummate vision and statecraft only eighty-five years ago, had been roughly staked out long before as fur-trading areas by French-Canadian explorers and voyageurs and by the Northwest and Hudson's Bay Companies—united in 1821. Lords of Canada's unmatched lakes and rivers and its immense plains and forests, these self-reliant intrepid traders controlled the great expanses linking the five diverse and widely separated areas of British territory that survived the American Revolution (1775-1783), areas that awaited, in the middle of the Nineteenth Century, a set of circumstances which goaded their straggling population of less than four million people to achieve political and economic survival through the creation of a federal state.

Of these five isolated regions the most easterly comprised the present-day Atlantic Provinces of Nova Scotia, Prince Edward Island, New Brunswick and Newfoundland. While the English fished in Newfoundland waters continuously since John Cabot sighted land in 1497 and John Guy made the first formal attempt at colonization in Conception Bay in 1610, they shared both Newfoundland and Nova Scotian (Acadian) waters and inlets with French fishermen from Normandy and Brittany until the struggle for empire engulfed the region in the first half of the Eighteenth Century. Although the Treaty of Utrecht (1713) acknowledged British sovereignty over Newfoundland and Acadia (except Cape Breton), the English-French conflict continued in Acadia until 1755 and in the St. Lawrence valley until 1760. The fifty-year interval witnessed the founding of Halifax in 1749 as a British military and naval base; the expulsion of the Acadians, who declined the oath of allegiance, in 1755; and the settling of New Englanders on the vacated lands along the Bay of Fundy, of German fishermen at Lunenburg and of Yorkshire farmers at Chignecto. When the thirteen American colonies launched their



war of independence (1775-83) against Great Britain, Nova Scotia became the logical refuge for Loyalists of broken fortunes who had supported the Crown. The doubling of its population resulted in the partitioning of Nova Scotia and the establishment of New Brunswick as a separate province in 1784.

In the valley of the St. Lawrence to the west lay the second region, ceded by France to Great Britain in 1763. Here, shut off by an almost impenetrable wilderness of forest and an ice-bound waterway in winter, dwelt a people distinctively French and Roman Catholic, apart from a few thousand British and colonial merchants and soldiers at Quebec and Montreal and some Loyalist settlers in the Eastern Townships to the south.

Beyond the predominantly French though vigorously Canadian province of Lower Canada lay the third region—Upper Canada, created in 1791 following the migration of Loyalists (after the American Revolution) to the north shore of the Upper St. Lawrence, Lake Ontario and the Niagara Peninsula, and subsequently strengthened by a steady stream of settlers from the American Middle West and by hundreds of thousands of colonists from the British Isles seeking freedom from the economic dislocations of the Industrial Revolution through a new life abroad.

A thousand miles to the west lay the remote and isolated Red River Settlement, the fourth region in the east-west chain of colonies on British soil. In 1834 this little settlement reverted to the Hudson's Bay Company which held it secure against the westward movement of American settlement until it might serve as the "keystone of the arch" of Canadian transcontinental federation a generation later.

Even more remote from the Canadas was the fifth area—the mainland province of British Columbia, established in 1858 and extended five years later to the 60th parallel of north latitude and east to the Rocky Mountains and subsequently strengthened by regional union with Vancouver Island in 1867. The international boundary had, of course, been extended in 1846 along the 49th parallel across the prairies to the Pacific.

Such were the five regions, isolated in a vast transcontinental imperial domain barely 100 years ago and awaiting both internal and external cohesive and coercive forces and circumstances that would weld them, in the space of less than a decade, into a Canadian federal state.

In both Europe and North America a new age was at hand, breathing industrialism, liberal democracy and nationalism. Under the impact of the doctrines of free trade and laissez faire the Mother Country abolished the old mercantile system in 1849, repealed the preferential Corn Laws and conceded "responsible government" to her British American colonies. And this apparent withdrawal of Great Britain from her North American commitments, including preparation for the transfer of the Hudson's Bay Company Territories to Canada (eventuating in 1870), drove the colonies to shake off their complacency and plan for their own political and economic future at a time when their southern neighbour was acquisitive and unfriendly.

The cumulative effect of abnormal pressures and events in neighbouring United States in the early 1860's—not the least of which was the Civil War which shattered the Anglo-American concord—served to quicken into activity the transcontinental ambitions of British Americans to preserve

their inheritance in the northern half of this Continent. Nothing but an expanding Canada could hope to hold the West envisaged by the Fathers of Confederation as a new frontier of settlement where the sons of Canadians and of new immigrants could make their homes and build whole provinces plentifully rich in resources for a thriving new national economy. Nothing but a political union of the scattered regions and provinces could ensure strenuous colonial efforts at self-defence and end the cloud of uncertainty.

Moreover, these political pressures and impulses towards union were matched by propitious timing in the economic sphere. The Industrial Revolution was also at hand with its first railways and tiny ships and factories. British American manufacturing, commercial and railway interests saw in political union the means of establishing an economic base strong enough to support the costly national enterprises of steam and steel. The building of the Intercolonial Railway to link Canada and the Maritime Provinces and the carrying out of the ambitious design of a transcontinental railway through British territory might now, in the new circumstances, be realized.

But the potency of all these impulses was strengthened by another incentive with its roots in the cultural division of the people of Canada. The legislative union of Upper and Lower Canada in 1841 had sought to combine two societies—partly Protestant and partly Roman Catholic and confronted with problems of religious organizations and endowments and of education derived from two philosophies with distinct ethnic and linguistic traditions—into a single province with equal representation for Canada West and Canada East in both the provincial legislature and the provincial cabinet. When more than twenty years of close divisions between balanced political parties resulted in short-lived governments and virtual deadlock, federalist-minded Canadian leaders harmonized their differences in a coalition

the prosperity of Montreal, that most beautiful and modern of business cities, has not destroyed its old world atmosphere. Close to the waterfront are the reminders of a past replete with romance, faith, determination and courage. Part of the foundation of the Church of Notre Dame de Bonsecours dates back to 1657 and the structure itself to 1771—its name perpetuates the gratitude of the French colonists for deliverance from the Iroquois.





A Hudson's Bay Company fort at Nanaimo on the east coast of Vancouver Island, a relic of the middle 1800's when that Company reigned supreme in the vast territory stretching from Hudson Bay to the Pacific and from the 49th Parallel to the Arctic Ocean. Vancouver Island itself was given to the Company by Royal Grant in 1849, on condition that it be colonized.

government in 1864, invited themselves to the Charlottetown conference ostensibly called to consider legislative union of the Maritime Provinces and persuaded the delegates to move on to Quebec where in October of the same year they hammered out the seventy-two Resolutions which, with substantial revision at the Westminster Palace Hotel conference in 1866, were to form the constitutional basis of a Canadian transcontinental federal union that one day would be able to stand alone.

Such were the impulses, ambitions, forces and events that prompted the passage by the Imperial Parliament of the British North America Act of 1867, uniting federally Canada East and Canada West (renamed Quebec and Ontario), Nova Scotia and New Brunswick into "One Dominion under the Name of Canada". Then, with unmatched speed and momentum the Canadian nation expanded westward across the Continent to the Pacific. The acquisition by Canada of Rupert's Land and the North-West Territories enabled the Red River Settlement to receive provincial institutions under the name of 'Manitoba' in 1870; permitted the pledging of a transcontinental railway linking the Pacific with the Canadian East, thereby bringing British Columbia into the Union in 1871; laid the land basis for the adoption of a free-homestead policy for the Canadian prairies that in conjunction with the completion of the Canadian Pacific Railway brought wave upon wave of settlers into the Territories in such numbers as to justify the creation of the two Provinces of Alberta and Saskatchewan in 1905. The garden Province of Prince Edward Island held back from the Union until 1873 and Newfoundland became Canada's tenth province on Mar. 31, 1949.

Canada evolved the foundations of nationhood peacefully and piecemeal. Building upon the British inheritance of parliamentary institutions which



it adapted, along with the application of refined federal principles, to a vast new land of scattered communities and diverse peoples, Canada gradually expanded the scope of responsible cabinet government from its initial application to purely local and internal issues (1848) until with growing momentum it added the sovereign functions of external trade, diplomatic negotiations and representation abroad, the formation of foreign policy, the making of peace and war, and brought the functions of the Governor General into alignment with those of the Crown in Great Britain. The Canadian Citizenship Act passed in 1947 and the appointment in 1952 of a Canadian Governor General, which required merely the advice of the Prime Minister of Canada, served to climax the Canadian experiment in nation-building.

Moreover, in the building of a sovereign nation in North America possessing distinctive political institutions and without resort to revolution or civil war but through the application of moderation, compromise, toleration and resourcefulness in the face of diversity, Canada gave to the British people and to the world a unique manner of nationhood that has since come to maturity in every part of the Commonwealth. Indeed, from the international aspects of the Canadian experiment there has evolved, through its formative experiences, a sort of 'entente' or working union of sovereign nations, a Commonwealth of Nations, in which the mechanics of colonial subordination have been completely supplanted by equality of status and free association among its members, by freedom of choice and decision in respect to their responses to the tensions and challenges of the modern world, by broad loyalties and common interests and aspirations, and by devotion to the ideals of peace and freedom for all mankind.

### ***Canada's External Relations***

The rapid expansion of Canada's diplomatic and consular force is a measure of the increasingly important role the nation has been playing in international affairs since the end of World War II. From a total of 32 officers in the Department of External Affairs serving in Ottawa and at seven diplomatic missions abroad in 1939, the Department in 1957 had 364 officers of whom 150 were in Ottawa and the remainder abroad at 60 posts. Remarkable internal expansion has made it economically possible for Canada to assume larger international responsibilities but at the same time pressure of external developments and the Communist threat to world peace has necessitated closer association with other free nations and the assumption of more specific international obligations even with respect to areas such as the Middle East where there may appear to be few direct Canadian interests.

Briefly, the basic objectives of Canada's foreign policy are the avoidance of conflict and, in the economic field, the development of the widest possible area and volume of trade on a multilateral basis. The principal elements of the policy have been membership in the Commonwealth of Nations, in the United Nations and in the North Atlantic Treaty Organization as well as maintenance of close relations with the United States of America.

**The Commonwealth.**—Since 1945 perhaps the most constant element of Canada's association in the Commonwealth has been its relationship with the United Kingdom which, while changing, has lost none of its long-standing close and friendly character. Such changes as the accession of Newfoundland,



*Vietnamese students are instructed in the use, care and maintenance of agricultural machinery at Laval University Agricultural School, Ste. Anne de la Pocatière, Que.*

the discontinuance of appeals to the Judicial Committee of the Privy Council and common membership in NATO have been logical developments in a natural and historical evolution.

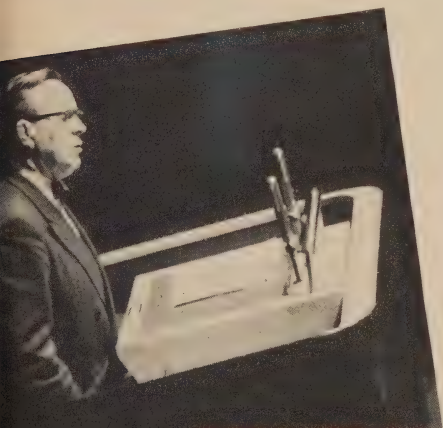
One of the more dramatic Commonwealth initiatives has been the establishment of the Colombo Plan for aid to materially under-developed countries in southeast Asia. From its beginning in 1950 to April 1957 Canada has made \$162,400,000 available to the Plan. These contributions have helped member countries with a number of capital projects including, in India, the Mayurakshi and Kundah hydro-electric and irrigation developments, and the Canada-India atomic reactor; in Pakistan, the Ganges and Warsak irrigation and power projects, and the Canada Cement plant; and in Ceylon, a large-scale fisheries development program. Canadian experts have been sent to south and southeast Asia and a large number of scholars from that area have received training in Canada in agriculture, engineering, medicine, business and public administration, and a wide variety of other fields. The present membership in the Colombo Plan includes: Australia, Burma, Cambodia, Canada, Ceylon, India, Indonesia, Japan, Laos, Malaya and British Borneo, Nepal, New Zealand, Pakistan, the Philippines, Thailand, the United Kingdom, the United States and Vietnam.

**The United Nations.**—Canada has been active in all phases of the work of the United Nations since 1945 when she participated in the drafting of the United Nations Charter at San Francisco. Then, as now, Canada shared the conviction that this world organization was essential to international security and progress and that Canada must be willing to assume its full share of responsibility for maintaining the peace and for promoting the well-being of the postwar world through the United Nations.

When lack of great power unanimity prevented the UN from dealing effectively with problems of international security, the urgent need for effective collective action to preserve the peace prompted Canada to take an active part in the creation of the regional defence arrangements of NATO. But, important as that organization has become to Canadian security, support for the UN remains a basic feature of Canada's international policy.

In 1948 and 1949 Canada played her part as a member of the Security Council in mediating the disputes in Kashmir, Indonesia and Palestine. At the time of the invasion of South Korea in 1950 Canadians looked to the UN to answer with decision this greatest challenge to its principles, and promptly joined in the collective UN action that defeated aggression there. During the Middle East crisis in the latter part of 1956, Canada assumed a leading role in UN actions which resulted in the cease-fire in Egypt, in the formation of the UN Emergency Force for the Middle East and in negotiations aimed at a long-range settlement of the complex problems in that area.

Canada's contribution in 1956 to the regular budgets of the UN and its specialized agencies amounted to \$3,000,000. In addition, a contribution of \$3,000,000 went to such special UN programs as UN Children's Fund, the UN Relief and Work Agency for Palestine Refugees in the Near East, the UN Refugee Fund and the UN Expanded Technical Assistance Programme. These financial contributions have been reinforced by the provision of training facilities in Canada for UN Fellows and by sending abroad Canadian experts under UN auspices.



*The Hon. Lester B. Pearson, Secretary of State for External Affairs of Canada, addressing the emergency session of the United Nations General Assembly called for November 1956 to debate the Hungarian situation.*

**UN Emergency Force Commander, Major-General E. L. M. Burns of Canada, inspecting the Canadian force at Aber Suweir, Egypt.**





**NATO.**—The primary objective of NATO is to provide a strong military deterrent to any aggression within the North Atlantic area. This co-operative deterrent comprises a powerful strategic bomber force, supported by ground and naval forces, maintained in readiness to blunt an attack for long enough to permit the West's retaliatory forces to carry out their role. As part of Canada's contribution, the Royal Canadian Navy has earmarked warships for the defence of coastal waters in the Canada-U.S. region and for the NATO naval forces under the control of the Supreme Allied Commander, Atlantic (SACLANT); a Canadian infantry brigade group is on duty in Germany under the Supreme Allied Commander, Europe (SACEUR); and twelve squadrons of the RCAF serve at bases in France and Germany, also under SACEUR. Canada is also co-operating closely with the United States in providing forces and facilities for the security of the North American region.

Since its inception in April 1950, the Canadian Mutual Aid Program has resulted in the provision of military assistance to Canada's NATO allies to an amount of over \$1,400,000,000. At Dec. 31, 1956, a total of 2,241 pilots and 2,237 navigators had graduated under the NATO aircrew training plan carried out at RCAF establishments in Canada.

The role of NATO also encompasses non-military co-operation. Parties to the Treaty have agreed to strengthen their free institutions, promote conditions of stability and well-being and seek to eliminate conflict in their economic policies.

**The United States.**—The fact that Canada is a neighbour of the most powerful nation in the free world has an important bearing on the formulation and execution of Canadian foreign policy. Since the end of the second world war there have emerged a growing number of problems of common concern to the two countries—problems related to the joint defence of the North American area of the North Atlantic Treaty and to the construction of continental defence installations in the Canadian North; co-operation in research and experimental projects; trade and economic relations; and boundary waters, including the development of the St. Lawrence Seaway.

**Missions Abroad.**—At the end of 1956 Canada was represented abroad by the following Missions:—

Embassies (33)			Legations (4)	
Argentina	Germany	Peru	Czechoslovakia	
Austria	Greece	Portugal	Finland	
Belgium	Haiti	Spain	Lebanon	
Brazil	Indonesia	Sweden	Poland	
Chile	Israel	Switzerland		
Colombia	Ireland	Turkey		
Cuba	Italy	U.S.S.R.		
Denmark	Japan	United States		
Dominican Republic	Mexico	Uruguay		
Egypt	Netherlands	Venezuela		
France	Norway	Yugoslavia		
Officers of High Commissioners (7)		Consulates General or Consulates (12)		Permanent Delegations and Missions (4)
Australia	Brazil:	United States:		
Ceylon	São Paulo	Boston	Berlin (Military Mission)	
India	Germany:	Chicago	Geneva (United Nations)	
New Zealand	Hamburg	Detroit	New York (United Nations)	
Pakistan	Philippines:	Los Angeles	Paris (North Atlantic Council and Organization for European Economic Co-operation)	
South Africa	Manila	New Orleans		
United Kingdom		New York		
		Portland		
		San Francisco		
		Seattle		

Money alone is not the solution to the problems of the under-developed countries of the world. Indeed it would be of little assistance without skilled personnel to plan and implement the necessary programs and to teach the people of these countries to make the best use of their land, water and human resources.

Cambodian woman learning Canadian-style fish filleting from a Canadian fisheries advisor in Indo-China.



16



This nurse supervising practical training in a hospital at Patna, India, is one of the many Canadian nurses, doctors and technicians who are working with the World Health Organization in widely scattered parts of the world. Excellent teaching facilities in Canada are also made available for the post-graduate training of doctors and nurses from under-developed countries.

Canadian electrical equipment and engineering services are being utilized for the Warsak dam project which will provide 160,000 kw. of electric power for West Pakistan.



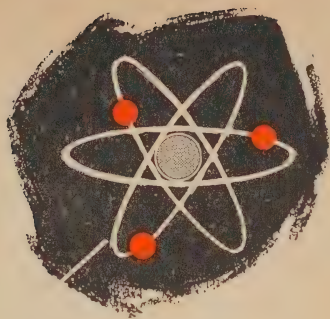


Montreal Harbor  
by Malak

*Growth generates growth and Canada today is in the midst of its own 20th Century industrial revolution, obtaining more and more of its increasing wealth from the processing and manufacture of its invaluable resources. One of every four persons working in Canada is now employed in a manufacturing plant and one of every three dollars of the national income is earned in those plants.*



# CANADA IN THE INDUSTRIAL WORLD



FOR less than a century the people of Canada have been engaged in forging a national entity in the northern portion of the North American Continent. Its territorial extension from the Atlantic to the Pacific and its development of a political society unique among the nations of the Western Hemisphere provide the backdrop to a story of recent economic growth unequalled elsewhere in the postwar world. Possessing an unsurpassed combination of natural resources, Canada is now undergoing such a rapid and broadly based development in energy resources, in the mining, manufacturing, construction and transport industries, in national production, consumption and trade, in population growth, and in national consciousness as to rank it with the world's major industrial powers.

This enormous industrial growth is firmly based upon immense primary resources. Canada's 575,000 farms of nearly 174,000,000 acres are rapidly being mechanized, thus contributing to increased productivity through enlarged operations on additional parcels of land and a reduction in manpower required per acre or per unit of output. Advanced technological developments and improved utilization and conservation methods are increasing the potential of Canada's forests which extend over an area of 1,500,000 sq. miles and are the source of the lumber, pulp, paper and other forest industries that account for about 6 p.c. of the value of output of the Canadian economy. Indeed, the rate of growth of the forest industries from a 1947 gross value of production of \$2,266,000,000 to \$3,617,000,000 in 1954 is a fair measure of the expanding rate (60 p.c.) during these years of Canadian industry in general.

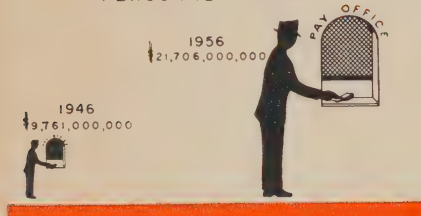
In addition to its rich endowment of the land-based resources of agriculture and forestry and its historic fisheries—sources of Canada's long-established staple exports of fish, furs, lumber and wheat which the Canadian colonies in earlier times exchanged for manufactured goods from industrialized countries and which still bulk large in the nation's international trade—Canada possesses water and mineral resources in such abundance and diversity as to equip it with the sinews of modern industrial might. Water powers, petroleum, gas, iron ore and a wide range of non-ferrous metals have in recent years been discovered in enormous quantities and are being harnessed and mined in ever-expanding volume.

Under the urgent pressure of two world wars and the subsequent revolutionary shifts of power away from Western Europe to the western half of the North Atlantic Community, Canada finds itself exhibiting the characteristics

## NATIONAL PRODUCT



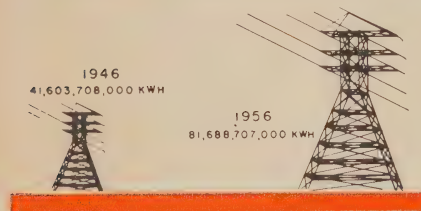
## PERSONAL INCOME



## CAPITAL EXPENDITURE



## ELECTRIC POWER GENERATED



## RETAIL SALES



of industrial maturity as it shares with its southern neighbour the latest innovations in scientific and managerial and technical skills as applied to new industrial processes, new energy resources, new means of transport, new structural materials and new metallic minerals. The discovery of new resources in abundance and the application of technological innovations have led to the creation of whole new industries, adding diversification to Canada's output and reducing the country's excessive dependence on raw-material production. At the same time, the long-utilized resources—such as the forests and the water powers of the Precambrian Shield—have also been put to new productive uses. It is when viewed against an awareness of progressive development on a broad economic front, including the older staples, that Canada's tremendous recent growth appears hardly less than sensational.

A fundamental factor in Canada's recent growth and future potential as an industrial power may be noted in the wealth and variety of its energy resources—its coal, water power, petroleum, natural gas and potentialities of nuclear power. That Canada's rich coal resources of some 98,000,000,000 tons (of which half are classified as recoverable by present techniques of mining) have not contributed generally to the development of heavy industry is largely because those coal deposits are located so far distant from concentrations of population, particularly those of the St. Lawrence lowlands which import a large portion of their requirements from the nearer coal fields of the United States. Only in the Cape Breton area of Nova Scotia with its proximity to Atlantic shipping has Canadian coal been a principal energy source.

On the other hand Canada's major centres of population and industry are happily relatively close to its largest resources of water power—whether in

Ontario, Quebec or British Columbia. Moreover, under current technological developments, which permit the economic transmission of electricity over difficult terrain and for great distances, Canada's widely distributed water power resources, as presently explored and recorded, are sufficient to permit a hydro-electric turbine installation of 66,000,000 h.p. While Canada's installed hydro-electric capacity comprises only 28 p.c. of its recorded resources, its output of 18,403,048 h.p. is second only to that of the United States in total amount and second only to that of Norway on a per capita basis. Yet construction work now under way indicates the addition of 4,000,000 h.p. by 1958 including 1,100,000 h.p. from the St. Lawrence power project, while vast reserves of undeveloped water powers of the Precambrian Shield and of mountainous British Columbia constitute valuable assets for future development.

Although richly endowed with cheap hydro-electric power technically indispensable as fuel or energy for such industries as pulp and paper and aluminum and base-metal smelting, Canada possesses also vast resources of petroleum and natural gas in its extensive interior plains region stretching from the United States border into the Northwest Territories. Estimates of recoverable reserves of petroleum—'life blood of a nation'—in 1956 were over 3,000,000,000 bbl. and that of natural gas 22,500,000,000,000 cu. feet; but the present rate and distribution of discovery is such as to make estimates out of date almost as soon as published. Indeed, actual and potential markets for Canadian oil and gas in Western Canada, in the Toronto and Montreal industrial areas, in the Pacific Northwest and North Central States of the United States are such that exploration for and development and production of these energy resources are likely to be progressively accelerated in the

### MINERAL PRODUCTION



### NEWSPRINT PRODUCTION



### NEW DWELLINGS COMPLETED



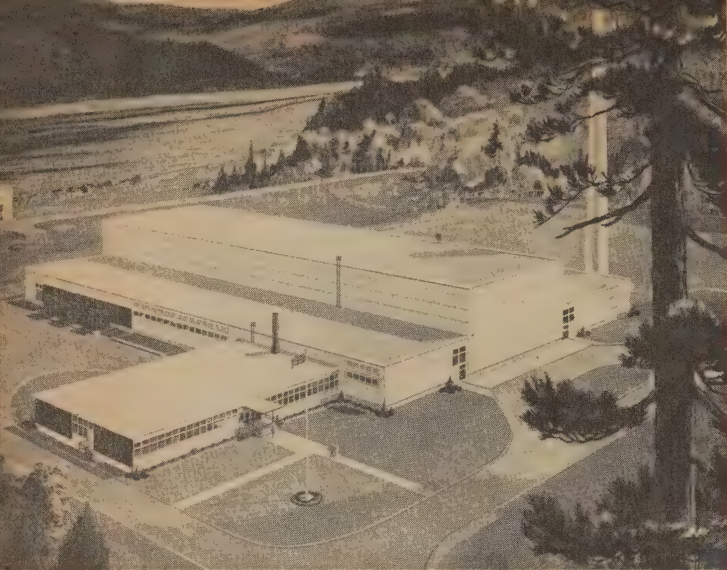
### MOTOR VEHICLE REGISTRATIONS



### GROSS VALUE OF MANUFACTURES







Canada is moving confidently into the nuclear power age. "NDP", the first plant, is now under construction on the banks of the Ottawa River. When completed in 1959, the station will generate 20,000 kwh. of electricity and will provide valuable information for nuclear development on a much larger scale.

immediate future. These markets are secured through a 1956 operational Canadian oil pipeline mileage of 5,800 and a natural gas pipeline mileage of 5,500 (including only 200 of the 2,200 miles of the trans-Canada gas pipeline under construction) with a 1956 throughput of 170,000,000 bbl. of oil and 173,260,000,000 cu. feet of natural gas. Moreover, a sustained market expansion in the foreseeable future may be anticipated through a full realization of the strategic location of Western Canada's oil (and gas) producing area—in close proximity to the markets of United States with which Canada's economic and strategic fate is inexorably linked, and sheltered from the perils and instability of overseas tanker supply.

Canada is a world leader in the newest and most spectacular of energy resources, possessing uranium ore reserves estimated at the end of 1956 to total 225,000,000 tons, with a uranium content of 237,000 tons. While nuclear energy may be expected to become industrially competitive with other forms of energy at a later stage than would be the case with countries deficient in hydro-electric power or oil, Canada has nevertheless begun the construction of an atomic power station for the purpose of experimenting in the new technical field of electric power generation through the use of nuclear fuels. In the meantime Canadian high-grade uranium concentrates being produced at the rate of 3,300 tons per year are expected to approximate a 15,000-ton output by mid-1958 when 24 concentration plants will have been brought into operation. Thus Canada stands as a major world source of this vital energy of the future and among the leaders in atomic research for industrial purposes.

No less significant than energy resources in placing Canada among the great industrial nations is the variety and wealth of its mineral resources and the rate at which these are being proved and brought into production. Less than one-third of the nation's land area has undergone geological reconnaissance mapping and even a much smaller area on a scale adequate for mineral

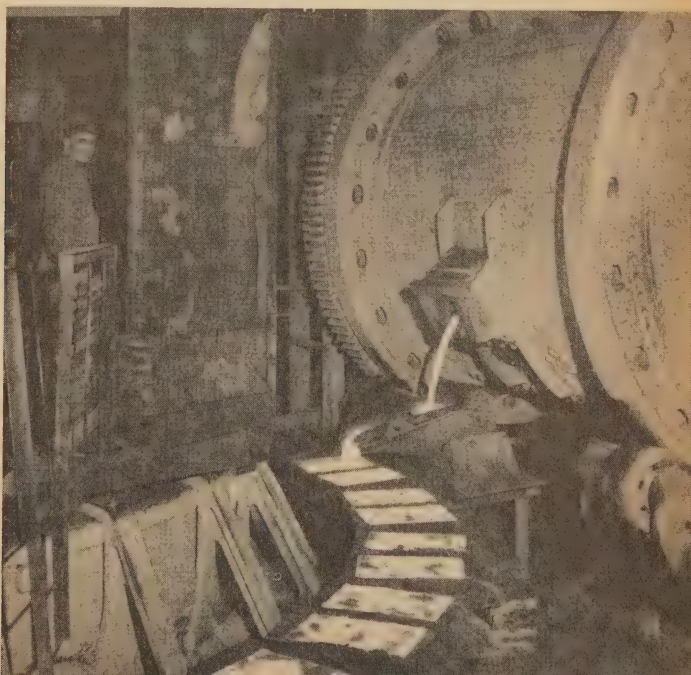
exploration. Nonetheless, vast potential resources of mineral wealth have been indicated and the application of the latest methods of scientific and technological research is constantly bringing rich new discoveries to light and extending the accessible areas of mineral development.

While the rapid expansion of the mining industry—highlighted by the tremendous increases that have occurred in the production of iron ore and petroleum—is outlined elsewhere in this volume (pp. 69-83), some measure of its significant growth and importance may be observed in the following table.

*Canadian Mineral Production, 1945-56*

Mineral		Av. 1945-49	1955	1956	1956 as p.c. of 1945-49	Canadian Production as p.c. of 1955 Free World Production	Canada's World Rank 1955
Copper.....	'000 tons	230.3	325.9	353.3	153.4	10	4
Nickel.....	"	119.5	174.9	177.9	148.9	82	1
Gold.....	'000,000 oz.t.	3.3	4.6	4.4	133.3	17	2
Zinc.....	'000 tons	244.9	433.4	423.6	173.0	15	2
Iron ore.....	"	1,923.3	16,283.0	22,526.0	1,171.2	5	—
Lead.....	"	167.9	204.7	186.6	111.1	10	4
Asbestos.....	"	595.7	1,063.8	1,038.9	174.4	84	1
Gypsum.....	"	2,275.7	4,667.9	5,192.8	228.2	—	—
Petroleum.....	'000 bbl.	11,470.5	129,440.2	170,569.2	1,487.0	—	7

That Canada's mineral production has doubled in value within six years to an estimated \$2,100,000,000 in 1956 is indicative not only of the great expansion currently taking place in the Canadian economy but also of the fact that Canada possesses in major quantities many basic and new metals that are in short supply in other industrial nations—particularly the United States. Indeed, the strong demands of the United States for a widening



*Anode casting wheel in  
a copper refinery.*

variety of minerals—copper, lead, zinc, iron ore and petroleum—in which it is no longer self-sufficient, and the fact that these resources are close at hand in a politically and economically sound Canada, have been among the major dynamic forces effecting the rapid postwar growth of the Canadian economy. Much of the impetus in the current growth of Canada may be attributed to the inflow of investment capital, technical skills and research from the United States to Canada's extractive resources industries.

The remarkable growth of capital investment in the construction sector of the Canadian economy from over \$2,000,000,000 in 1947 to an estimated \$6,702,000,000 in 1956, and comprising during the period from 14 to 22 p.c. of the gross national product, has greatly increased Canada's industrial, commercial and transportation facilities and contributed to the housing needs of its rapidly growing population. Marked increases in industrial capacity have been attained through the provision of new plant construction, machinery and equipment embodying the latest technological improvements—particularly in such manufacturing industries as pulp and paper, automobiles, electrical appliances, petro-chemicals, electronics and in the great resource industries of mining, smelting and refining in which the technical skills and experience of United States engineers and corporation management have been most influential. Moreover, the investment in new mines, in oil fields and related industrial projects, and in new transportation facilities to frontier regions is bringing about substantial shifts in Canada's economic geography, thereby broadening the distribution and diversification of industry and greatly strengthening the national economy.

The tremendous postwar extension of Canada's transportation facilities—railway, truck, airway, pipeline and/or waterway—holds a fundamental place in the nation's recent surge of industrial growth. Canada's two world-renowned transcontinental railway systems have in recent years been pushing branch lines northward into potentially rich mining regions, as have numerous other railways such as the Quebec North Shore and Labrador, the Ontario Northland, the Northern Alberta and the Pacific Great Eastern Railways. Highway construction has mounted with the marked increase in automobile and truck registrations of 114 p.c. between 1947 and 1955. Through the use of aircraft the frontiers of industrial development have expanded by a series of discontinuous leaps northward from established centres serving as springboards for further advance into otherwise inaccessible regions. The present supply of all oil refineries from Vancouver to Sarnia through Canada's crude oil pipeline systems—particularly the Interprovincial Pipeline from Edmonton to Sarnia and the Trans Mountain Pipeline from Edmonton to Vancouver, together with the Westcoast Transmission Company gas pipeline from the Peace River region to Vancouver and the Trans-Canada gas pipeline from Alberta via an all-Canadian route to Toronto and Montreal—are making Canada self-sufficient in oil and facilitating the use of some of the tremendous available supplies of natural gas, offsetting the fuel deficiencies of Ontario and Quebec, materially assisting Canada's balance of payments, greatly strengthening the energy base for Canadian industrial growth, and bringing about important structural changes in the economy of the Prairie Provinces and northern Ontario through the establishment of ancillary industries utilizing these new material and fuel resources.



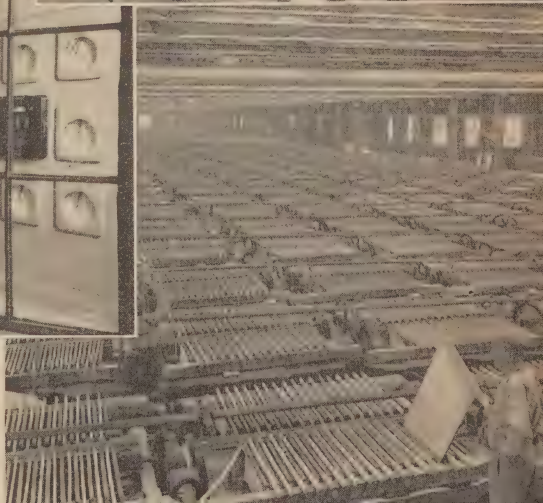
Perhaps the most symbolic measure of Canada's industrial strength and new-found confidence as a nation is the construction of the St. Lawrence Seaway which will, by the spring of 1959, provide navigation for ocean-going vessels into the heart of the Continent. Along the 2,280 miles of deep inland waterway will go a vast east-west movement of Quebec-Labrador iron ore while the traditional west-east movement of grain, foodstuffs and raw materials to Europe will be greatly augmented by bulk cargoes of newsprint, lumber and pulp to the United States carried by large lake freighters—one of the most economical methods of modern transportation. Indeed, it would

*The chemical and mining industries have long been intimately connected. Such minerals as copper, lead, zinc, sulphur, talc and barite are important raw materials of the chemical industry and, vice versa, chemicals are of major importance in the separation and refining of ores. Each process has its own problems and as the range of metallic and non-metallic minerals grows so grows the number and complexity of chemical processes. Demands for heavy chemicals like sulphuric acid, nitric acid, sodium chlorate, muriatic acid and ammonia are being met and provision made for potential requirements.*

A new ammonia plant began operations at Millhaven, Ont., early in 1957.



Control room in a sulphur dioxide plant at Copper Cliff, Ont. ▶  
 Tank room in the base metal smelter at Flin Flon, Man. ▶





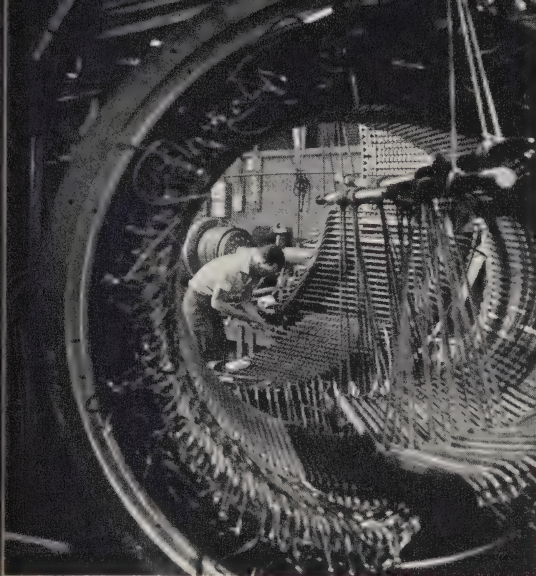
*The helicopter has become an indispensable ally in the investigation and development of otherwise inaccessible areas.*

now appear that a century-old Canadian dream is about to be realized as the St. Lawrence Seaway becomes not only one of the major traffic arteries of world commerce but also makes possible an ever-increasing concentration of industrial enterprise in the St. Lawrence-Great Lakes region.

Many other indications that Canada is rapidly assuming the status of a great industrial nation and has merely reached the threshold of its greatest period of expansion may be found in the subsequent pages of this handbook. Since 1951, Canada's population has grown by 14.8 p.c., its per capita disposable income from \$1,045 to \$1,239 or by 18.5 p.c., its per capita gross national product from \$1,533 to \$1,844 or by 20 p.c. and its volume of industrial production (to 1955) by over 17 p.c. An even more rapid growth has taken place during the past two years as evidenced by annual increases of 7 p.c. in the physical volume of Canadian production of goods and services and increases of 10 p.c. in the value at market prices. Canada's foreign trade, likewise a vital measure of the nation's industrial expansion, reached a new all-time peak of \$9,063,000,000 in 1955, an increase of 12.7 p.c. over the preceding year.

Possessing a strategic position in the Northern Hemisphere—fronting three oceans and sharing a common frontier with the world's leading industrial power, richly endowed with the key material and energy resources of Twentieth Century industrialism, owning one of the most varied, rapidly expanding and modern of national transportation systems which binds diverse and far-flung regions into a dynamic functioning economic and political entity, populated by an industrious and robust people recently electrified into a vibrant national consciousness by its war and postwar achievements and remarkable economic growth, and governed by democratic institutions and processes that combine the best features of individual and public enterprise in the development of a transcontinental state, Canada's industrial future among the nations appears exceptionally bright and the maintenance of a high standard of living for its people confidently assured.



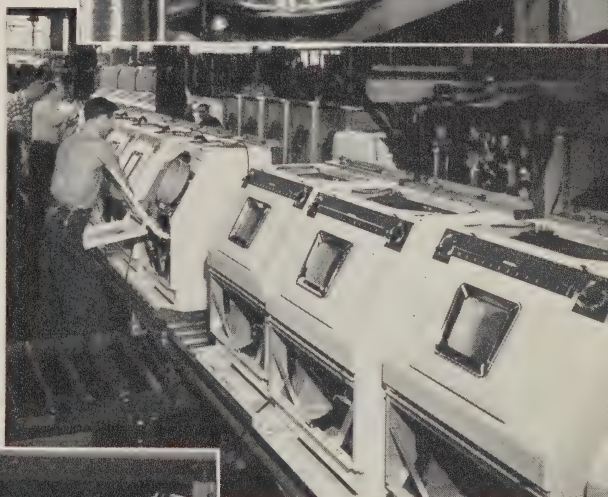


Craftsmen working on a large generator for an industrial installation.

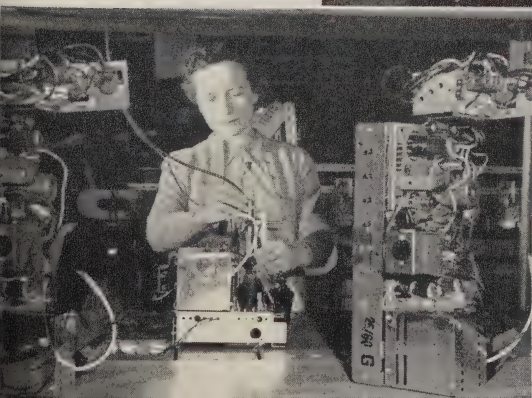
Keeping a close check on the manufacture of magnet wire which is used in the winding of relay coils, in motor armatures, and in countless other electrical devices.



Canada has come to be known as an electrical country. Developments in the mining and manufacturing industries as well as increased requirements for business, farms and homes, have created a tremendous demand for electrical equipment and apparatus. In 1956 Canada's electrical manufacturers produced goods valued at \$1,200,000,000 and employed more than 80,000 people.



Automatic washing machines moving along the assembly line.



Assembling television sets.





Bay Street, Toronto  
by Malak

*The increasing participation of government—federal, provincial and municipal—in the daily affairs of the people characterizes the modern state, yet the true measure of the country's success is found in the ability, enterprise, faith and well-being of its citizens.*

# THE PEOPLE and THEIR GOVERNMENT



WHAT can be said of a people, few in number and so scattered over a vast area of land that they average only about four to a square mile, whose native cultures, rich in themselves, are traditionally diverse but who have met on the common ground of industry and stability and created in this great land—calm, rich and unspeakable in its beauty—a progressive nation of distinctive character, governed by democratic institutions combining the best features of private and public enterprise, and moving steadily onward to unknown goals.

Most of the people now living in Canada are descendants of persons who migrated to this country at one time or another since the early days of colonization and each, as he has become integrated into the Canadian social and industrial structure, has in turn become the Canadian influence for the newcomer. The earliest settlers in what is now Canada were French but before long great numbers of people began to arrive from the British Isles so that by the middle 1800's they outnumbered the French. Although in later years other ethnic groups brought variety to Canada's population, today to these two basic stocks belong more than three-quarters of its people.

The pattern of their settlement was at first influenced by the natural transportation routes, the climate and the resources from which they obtained their livelihood—today there are other influences. Heavy concentrations of population draw greater numbers to themselves but at the same time civilization is reaching out into the hinterland and for a people who have mastered their environment there are no drawbacks to building new modern communities in the wilderness. Indeed, to Canadians there are no drawbacks to any type of development no matter how amazing. In these days of rapid change, the foundations of Canada's institutions, its government and its industry have proven their worthiness—and the future belongs to those who prepare for it.

# Population

MANY factors have combined in recent years to provide a strong impetus to Canadian population growth. The phenomenal industrial development and accompanying economic prosperity since World War II have been reflected in a "baby boom" which has shown no signs of receding and which has placed Canada's birth rate foremost among those of major industrial nations of the world. At the same time, improvement in the general standard of living reinforced by progress in medical research and public health measures has resulted in an appreciable reduction in the death rate. Furthermore, expanding economic opportunities have attracted immigrants to Canadian shores in increasing numbers. As a consequence, the rate of population increase in Canada has been rising steadily.

The Census of 1951 recorded 14,009,429 people as being resident in Canada. Excluding Newfoundland whose entry into Confederation in 1949 brought 348,000 persons into the Canadian community, the population of Canada on June 1, 1951 stood at 13,648,013 which was 2,100,000 or 18.6 p.c. more than the total recorded at the 1941 Census. Since 1951 the dynamics of population growth in Canada appears to have gained even greater force. The total population at June 1, 1956 was 16,080,791, an addition of more than 2,000,000 people—the largest growth in any five years of Canadian history.

Natural increase—the excess of births over deaths—contributed by far the larger portion of this increase. As in most industrial nations, the birth rate in Canada began to decline around the turn of the century. By the 1930's this decline had become quite pronounced and the birth rate reached its lowest level of 20.1 per thousand population in 1937. In the early years of the War, however, the downward trend was reversed and after the War the rate rose steeply to a peak of 28.9 per thousand in 1947. Since then it has never dropped below 27 and for the past three years has been well over 28. The death rate, in the meantime, has shown a consistent tendency to fall—from 10.1 in 1943 to 9.2 in 1951 and to 8.2 in 1954 and 1955, the lowest on record for the nation. An appreciable decline was also shown in the death rates for specific age groups, particularly among infants and the younger age groups. The consequent excess of births over deaths thus accounts for an impressive addition of nearly 1,500,000 to the population of Canada during the five years from 1951 to 1956.

The balance of approximately 600,000 between the natural increase and the total increase in population represents the excess of immigration over emigration during the same period. This net immigration, which accounted for more than a quarter of the population increase in the 1951-56 period, was three times as high as that for the preceding ten years which amounted to 168,964 people, but of course very little immigration took place during the war years of that period. Since 783,000 immigrants came to Canada in the 1951-56 period, the apparent emigration from Canada must have been close to 200,000. Though some of these people leaving the country would be recent immigrants, most of them were Canadian-born people, so that the





casting an eye on Edmonton's growth  
 an engrossing if formidable task.  
 is capital city of Alberta, incorporated  
 1904, led a quiet, slowly expanding  
 existence until the discovery of oil in the  
 field in 1947. As a consequence  
 the exploitation of the oil and gas  
 reserves and of the city's situation in the  
 centre of a productive agricultural area  
 as the main distribution point for  
 many new developments to the  
 north, Edmonton has grown by leaps  
 and bounds. The population of its  
 metropolitan area increased 44.5 p.c.  
 from 1951 to 1956, the fastest rate of  
 growth of any city in Canada.



contribution made to the population growth in Canada by the increased flow  
 of immigration in recent years may well have approached a third of the total  
 increase.

The recent trends in vital rates and immigration have not only affected  
 population growth but have also considerably changed its age composition.  
 The high birth rate together with the low death rate among children has  
 added between 1951 and 1956 nearly 1,000,000 persons to the population under  
 fifteen years of age, an increase of 22 p.c., and raised the proportion of this  
 group to the total population from 30.4 p.c. to 32.5 p.c. On the other hand, the  
 working-age group—persons from 15 to 64 years of age—increased at a con-  
 siderably slower rate than the total population (14.8 p.c.), despite the fact



*Montreal is Canada's largest city. The little settlement of Ville Marie of the early 17th Century has become a world-renowned commercial metropolis, vital and expanding, a happy combination of the old and the new. By 1956 the city had a population of 1,620,758, the city proper having increased 8.6 p.c. since 1951 and the fringe area by 36.8 p.c. This is perhaps Canada's most cosmopolitan city where French and English and a mosaic of other races live and work side by side.*

that over 65 p.c. of the immigrants coming into Canada between 1951 and 1956 were between the ages of 20 and 49 and as much as 76 p.c. were from 15 to 59 years of age. The relative proportion of the 15-64 age group to the total was 2 p.c. lower in 1956 than in 1951 although its number increased by 939,200. Without the influx of immigrants, the proportion of this productive group would have been much lower since a large portion of it consists of the survivors of those born in the prewar decade when birth rates were at their lowest. The proportion of persons in the age group 65 years or over remained remarkably stable at slightly less than 8 p.c.

### *Distribution of Population by Age Groups, 1951 and 1956*

(Exclusive of the Yukon and Northwest Territories)

Age Group	1951		1956		Increase, 1951-56	
	No.	p.c.	No.	p.c.	No.	p.c.
0-9.....	3,119,934	22.3	3,790,616	23.6	670,682	21.5
10-14.....	1,130,783	8.1	1,434,594	8.9	303,811	26.9
15-19.....	1,057,972	7.6	1,162,301	7.2	104,329	9.9
20-44.....	5,130,290	36.6	5,683,316	35.4	553,026	10.8
45-64.....	2,484,177	17.7	2,766,026	17.2	281,849	11.3
65 or over.....	1,086,273	7.8	1,243,938	7.7	157,665	14.5
Totals.....	14,009,429	100.0	16,080,791	100.0	2,071,362	14.8





*Toronto, already a "Meeting Place" when Brûlé camped on the lakeshore three hundred years ago, has not lost that early distinction. It lies in the centre of Canada's most highly industrialized region and its outskirts encompass a third of the national market. Metropolitan Toronto, with a population of 1,358,028 in 1956, is moving closer to Montreal in numbers. Although the city proper had 1.2 p.c. fewer people than in 1951, the fringe area surged upward by 56.3 p.c.*

The same social and economic forces stimulating the rapid growth of the Canadian population in recent years have also caused notable shifts in its geographic distribution. Between 1951 and 1956 the populations of all the provinces increased in number, but the magnitudes of those increases were strikingly varied. Ontario led with an impressive addition of nearly 807,391 people, though it ranked only third in percentage increase. In this respect British Columbia and Alberta came first and second, each with an increase of about 20 p.c.

The provincial percentage increases reflect both interprovincial migration and differential rates of natural increase, so that even those provinces suffering net loss of population through an excess of out-migration over in-migration still grow so long as that loss is exceeded by natural increase. The five Provinces of Saskatchewan, Manitoba, Nova Scotia, New Brunswick and Prince Edward Island actually lost population through net out-migration but still showed percentage increases in population. All other provinces gained through net migration.

Net migration accounted for more than 58.0 p.c. of the total population increase for British Columbia since 1951 and 46.5 p.c. for Ontario. Although the percentage for Alberta was lower than for those two provinces, Alberta showed a striking shift in its pattern of migration during the 1951-56 period—during 1941-51 it had suffered a slight loss through net out-migration but in 1951-56 recorded a net migration gain of 64,308 which was more than a third of its total population increase in that period. It is also of interest to





*Vancouver, a jewel in a magnificent setting, is the centre of business and industry, of culture and education on the West Coast and Canada's third largest city. Its population, numbering only 27,010 at the turn of the century, has grown to 665,017. In the five years 1951 to 1956, the city proper expanded 6.1 p.c. and the suburban area 37.8 p.c.*

note that the net migration gains in British Columbia and Alberta were accounted for partly by interprovincial movement and partly by immigration while the majority of migrants into Ontario appears to have been immigrants. In fact, the estimated immigrant gain in Ontario exceeded the net migration gain by a considerable margin.

### *Elements in Provincial Population Growth, 1951-56*

Province	Population		P.C. Increase 1951-56	Natural Increase		Net Migration	
	1951	1956		No.	P.C. of 1951 Pop.	No.	P.C. of 1951 Pop.
	No.	No.					
Nfld. ....	361,416	415,074	14.8	52,892	14.6	766	0.2
P.E.I. ....	98,429	99,285	0.9	8,920	9.1	-8,064	-8.2
N.S. ....	642,584	694,717	8.1	63,156	9.8	-11,023	-1.7
N.B. ....	515,697	554,616	7.5	59,812	11.6	-20,893	-4.1
Que. ....	4,055,681	4,628,378	14.1	475,278	11.7	97,419	2.4
Ont. ....	4,597,542	5,404,933	17.6	431,913	9.4	375,478	8.2
Man. ....	776,541	850,040	9.5	73,651	9.5	-152	—
Sask. ....	831,728	880,665	5.9	85,978	10.3	-37,041	-4.5
Alta. ....	939,501	1,123,116	19.5	119,307	12.7	64,308	6.8
B.C. ....	1,165,210	1,398,464	20.0	98,006	8.4	135,248	11.6
<b>Canada<sup>1</sup>...</b>	<b>13,984,329</b>	<b>16,049,288</b>	<b>14.8</b>	<b>1,468,913</b>	<b>10.5</b>	<b>596,046</b>	<b>4.3</b>

<sup>1</sup> Exclusive of the Yukon and Northwest Territories.

The rapid industrialization of a nation not so long ago predominantly agricultural has been accompanied by definite changes in the utilization of manpower and a growing movement from rural to urban areas. While the rural population has remained more or less stable in numbers, the proportion of that population to the expanding total of the country has declined steadily. In 1951 there were 8,473,458 people residing in urban places of 1,000 or more population in Canada (exclusive of Newfoundland). The percentage increase in the urban population between 1941 and 1951 was 30.3 p.c. but the increase in rural farm and non-farm population was only 3.4 p.c. The farm population actually decreased during this period by 300,000 or 9.5 p.c., while the non-farm rural population increased by 436,237 or about 20 p.c. Of particular note during this period was the increasing concentration of the Canadian population in urban centres of 100,000 or more, and the shift in the pattern of growth of the larger cities indicated by the fact that their "fringe" areas increased 68.2 p.c. while the cities proper increased only 14.5 p.c.

These rural-urban shifts in the 1941-51 period continued in the subsequent five years, but at an accelerated pace. The impact of industrial expansion on the geographic and occupational movement of the Canadian population became increasingly manifest. Large-scale mechanization of farming operations for example, released a growing proportion of farm labour for non-agricultural employment, and manufacturing industries and services attracted them cityward. The population living in urban areas on June 1, 1956, numbered 10,714,855, an increase of 24.2 p.c. over the 1951 urban total. Rural population decreased from 5,381,176 to 5,365,936 or by 0.3 p.c. in the same comparison, and in 1956 represented only 33.4 p.c. of the total Canadian

Winnipeg's story is linked with the opening up of the West, with the hardy voyageurs and the fur trade. It was incorporated as a city in 1873 with a population of only 1,869. Today it is Canada's fourth largest city and still the focal point for all transport across the country by rail, air or road. Like other Canadian cities it is spreading rapidly, its metropolitan area having a population of 409,121 persons in 1956, an increase of 25.5 p.c. since 1951.



population as against 38.4 p.c. in 1951. The decrease in farm population was even greater amounting to 7 p.c. If the higher rate of natural increase in the rural areas is taken into account, the rural-urban shift becomes even more significant.

The heavy concentration of people in the metropolitan centres was also accentuated during the 1951-56 period as was the dramatic expansion of the suburban areas of those centres. At June 1, 1956, 6,281,598 people, or more than a third of the population of Canada, were reported as residents of the 15 metropolitan areas where the increase in population during the 1951-56 period was 19.3 p.c. This means that of the national increase of about 2,000,000 during that period as much as 49 p.c. was accounted for by the increase in the metropolitan centres alone. Actually the rate of growth in most of the cities proper has slowed down and an increasingly heavier concentration of population has been taking place in the suburban areas lying outside the city limits. This applied to all Canada's metropolitan areas without exception. Thus central city population of the metropolitan areas increased by only 9.0 p.c. from 3,596,854 in 1951 to 3,919,448 in 1956, and during the same period the population residing in the fringe areas grew by 41.7 p.c. to reach 2,362,150. The proportion of the total metropolitan population increase attributed to this suburban growth amounted to 68.3 p.c. For Montreal, Canada's largest metropolis, the growth of the city proper was 8.6 p.c., and the growth of the suburban area 36.8 p.c. For Toronto, ranking next to Montreal in size, the variation was even greater—the population of the city proper decreased 1.2 p.c. while the fringe area gained 56.3 p.c. The following table shows the extent to which the growth in Canada's metropolitan areas is attributed to expanding fringe areas.

### *Population Increase in Metropolitan Areas, 1951-56*

Metropolitan area	1951 <sup>1</sup>	1956	P.C. Increase		
			Metropolitan Area	City Proper	Fringe Area
	No.	No.			
Calgary.....	140,645	200,449	42.5	40.8	61.1
Edmonton.....	173,748	251,004	44.5	41.6	77.1
Halifax.....	133,931	164,200	22.6	9.0	46.7
Hamilton.....	272,327	327,831	20.4	15.0	37.8
London.....	128,977	154,453	19.8	6.7	56.9
Montreal.....	1,395,400	1,620,758	16.2	8.6	36.8
Ottawa.....	292,476	345,460	18.1	9.9	36.4
Quebec.....	274,827	309,959	12.8	4.1	25.7
Saint John.....	78,337	86,015	9.8	3.4	21.6
St. John's.....	67,313	77,991	15.9	8.0	44.8
Toronto.....	1,117,470	1,358,028	21.5	-1.2	56.3
Vancouver.....	561,960	665,017	18.3	6.1	37.8
Victoria.....	108,285	125,447	15.8	6.3	24.4
Windsor.....	163,618	185,865	13.6	1.6	46.6
Winnipeg.....	354,069	409,121	15.5	8.2	30.1
<b>Total.....</b>	<b>5,263,383</b>	<b>6,281,598</b>	<b>19.3</b>	<b>9.0</b>	<b>41.7</b>

<sup>1</sup> The areas for 1951 are adjusted to the 1956 boundaries.

The rate of metropolitan population growth during the period from 1951 to 1956 was highest in Edmonton at 44.5 p.c. and Calgary at 42.5 p.c. The metropolitan areas of Quebec and Saint John grew at the slowest rates of 12.8 p.c. and 9.8 p.c., respectively. With the exception of Toronto all the central cities of the metropolitan areas gained in population, their growth



rates ranging from 1.6 p.c. in Windsor to 41.6 p.c. in Edmonton. It is interesting to note that Edmonton and Calgary showed a pattern considerably different from that of the other areas. Some of the older cities within metropolitan areas are apparently approaching the saturation point in their population growth but the city proper of Edmonton and Calgary showed more than a 40 p.c. increase between 1951 and 1956.

The above statistics clearly reveal the most rapid acceleration of urban development in Canada's history and the consequent significant growth in the importance of the metropolitan area as a functionally integrated unit of social organization. The close relationship between the central city and its fringe areas has been made possible by the growing efficiency of communication and transportation facilities.

## Vital Statistics

Almost 3,000,000 people have been added to Canada's population in the decade since the end of the War. As has already been stated, natural increase contributed the major part of this increase. In the year ended June 1, 1955 alone, the Canadian population grew by 405,000 and of this, the excess of births over deaths accounted for 313,739 or 77 p.c. Since the end of World War II, the birth rate per thousand population has fluctuated around 27-28—about the same as following World War I—as compared with 20-24 between 1926 and 1946. However, the number of births each year is about double that in the 1920's and 1930's and is stabilizing at close to 450,000 a year. Most of this increase was not due to increased fertility but, as in most other industrialized countries, to an increase in married couples. Among the provinces,

The Dominion Bureau of Statistics at Ottawa is known nationally and internationally as the headquarters of Canada's Census and the source of unlimited statistical information. Mr. Herbert Marshall, under whose direction the Bureau functioned for eleven years, retired from office at the end of December 1956



Newfoundland has the highest birth rate at 35.8 followed, in order, by Alberta, New Brunswick and Quebec; British Columbia has the lowest at 26.2.

The decline in the marriage rate from 8.5 in 1954 to 8.2 in 1955 is not an indication of a tendency among young people to postpone or avoid marriage but a result of fewer potential brides and grooms. In fact higher proportions of single women in various age groups are marrying than formerly. The decrease in the marriage rate is due to the small number of children born during the 1930's, children now reaching marriagable age and thus producing a second-generation effect on the present marriage rate. During the 1920's and 1930's the marriage rate was remarkably steady at 6 to 8 per thousand population; it rose sharply during and immediately following World War II to a record 10.9 and has since been declining very gradually.

In 1955 Canada's death rate remained at the all-time low of 8.2 established in 1954, a rate among the best in the world. While the Netherlands reported a crude death rate of 7.6 in 1955, Canada's rate of 8.2 compares favourably with that of the United States at 9.3 and the United Kingdom at 11.7 in 1955.

In the interpretation of 1955's mortality experience a number of characteristics deserve special emphasis. Infant deaths, despite a slightly lowered rate, remained a serious problem and accounted for 11 p.c. of all deaths. Death rates for males have always been significantly higher than those for females; in 1955 the male rate was 9.5 and the female rate 7.0. In 1955 the death rate for those under five years was, for the first time, lower than the general death rate of the total population. The major causes of death vary with age. Accidents and violence are relatively far less significant than cardiovascular disease and cancer for the population as a whole, but rank as the leading cause of death for both males and females in the age group 5-19 years and for males in the age group 20-44 years. Although tuberculosis is far from being a major cause of death for the population as a whole, it remains the fourth leading cause of death for the age group 20-44. Cancer is the leading cause of death for females between 20-44 while for all but children under four it is the second or third major cause of death. In the age groups above 44 years diseases of the heart and blood vessels are the leading cause of death.

### *Births, Marriages and Deaths, 1926-55*

(Exclusive of the Yukon and Northwest Territories; Newfoundland included from 1949)

Year	Births		Marriages		Deaths		Maternal Deaths	
	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>2</sup>
Av. 1926-30...	236,521	24.1	71,886	7.3	108,925	11.1	1,339	5.7
Av. 1931-35...	228,352	21.5	68,594	6.5	103,602	9.8	1,153	5.0
Av. 1936-40...	228,767	20.5	96,824	8.7	109,514	9.8	1,043	4.6
Av. 1941-45...	276,832	23.5	113,936	9.7	115,144	9.8	791	2.9
Av. 1946-50...	354,869	27.4	126,687	9.8	119,975	9.3	523	1.5
Av. 1951-55...	415,255	28.1	128,706	8.7	126,292	8.5	350	0.8
1951.....	380,101	27.2	128,230	9.2	125,454	9.0	405	1.1
1952.....	402,527	27.9	128,301	8.9	125,950	8.7	374	0.9
1953.....	416,825	28.2	130,837	8.9	127,381	8.6	324	0.8
1954.....	435,142	28.7	128,385	8.5	124,520	8.2	312	0.7
1955.....	441,681	28.4	127,777	8.2	128,154	8.2	335	0.8

<sup>1</sup> Per 1,000 population.

<sup>2</sup> Per 1,000 live births.

## Births, Marriages and Deaths, by Province, 1955

(Exclusive of the Yukon and Northwest Territories)

Province	Births		Marriages		Deaths		Maternal Deaths	
	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>1</sup>	No.	Rate <sup>2</sup>
Nfld.....	14,757	35.8	3,211	7.8	3,206	7.8	29	2.0
P.E.I.....	2,784	25.8	667	6.2	901	8.3	2	0.7
N.S.....	18,967	27.8	5,288	7.7	5,940	8.7	13	0.7
N.B.....	16,609	29.8	4,359	7.8	4,435	7.9	20	1.2
Que.....	133,372	29.5	35,356	7.8	33,952	7.5	133	1.0
Ont.....	139,554	26.9	44,634	8.6	45,434	8.8	81	0.6
Man.....	22,397	26.4	6,913	8.1	6,853	8.1	15	0.7
Sask.....	24,746	27.8	6,494	7.3	6,661	7.5	11	0.4
Alta.....	34,357	32.2	9,844	9.2	7,956	7.5	15	0.4
B.C.....	34,138	26.2	11,011	8.4	12,816	9.8	16	0.5
<b>Canada.....</b>	<b>441,681</b>	<b>28.4</b>	<b>127,777</b>	<b>8.2</b>	<b>128,154</b>	<b>8.2</b>	<b>335</b>	<b>0.8</b>

<sup>1</sup> Per 1,000 population.

<sup>2</sup> Per 1,000 live births.

## Citizenship

All persons born in Canada, as well as children born of Canadian parents outside of Canada if registered according to law, are Canadian citizens and cannot be deprived of their citizenship unless they themselves take definite steps to acquire another nationality. A Canadian citizen holds also the status of a British subject. Immigrants who are naturalized in Canada become citizens and British subjects and retain their citizenship so long as they remain domiciled in Canada or have authority for absence from Canada and do not commit acts that result in revocation.

Canada stands at the forefront of the western countries with a birth rate of 28 per thousand population compared with 25 for the United States and 15 for England and Wales. The only countries with a higher rate than Canada are Venezuela, Mexico, Chile, India and Peru.





Results of the 1951 Census show that 96.8 p.c. of all the people of Canada at that time were Canadian citizens, 0.7 p.c. were citizens of other Commonwealth countries, 1.7 p.c. of European countries, 0.1 p.c. of Asiatic countries and 0.6 p.c. of other countries. In 1951, 98.0 p.c. of the persons of British Isles origin and 99.7 p.c. of those of French origin owed allegiance to Canada. Corresponding percentages for other European and Asiatic countries were 89.3 p.c. and 78.7 p.c., respectively.

An applicant for citizenship is required to have resided in Canada for five years after having been admitted to Canada for permanent residence. Besides showing that he is a conscientious law-abiding citizen, he must have an adequate knowledge of Canadian history, geography, form of government and of the responsibilities of citizenship.

The Department of Citizenship and Immigration administers the Canadian Citizenship Act and provides leadership in the building of true citizenship among all Canadians. Special courts in Montreal and Toronto handle all matters pertaining to Canadian citizenship. In other centres, applications for citizenship are handled by local courts or by the Registrar of Canadian Citizenship.

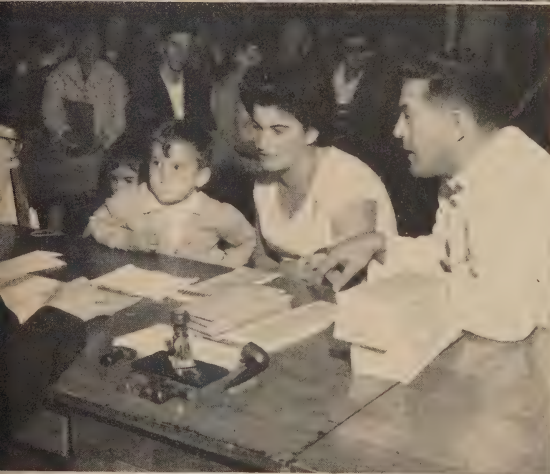
## **Immigration**

The policy of the Federal Government is to foster the growth of Canada by encouraging immigration. The immigrants are drawn from countries whose people have most in common with the Canadian people, and the volume of immigration admitted is adjusted to Canada's absorptive capacity which is kept under constant review. Up to a point, immigration tends to be self-adjusting, for immigrants are not inclined to journey to a new country unless they are fairly sure of finding employment without too long a delay.

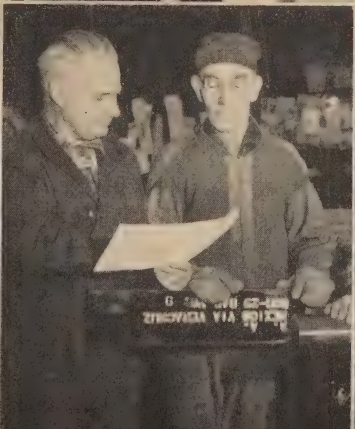
The formation of the Department of Citizenship and Immigration in 1950 reflected Canada's postwar determination not merely to add to the population but to make it easier for newcomers to establish themselves successfully in this country and overcome the initial problems that inevitably face immigrants. The Immigration Branch is responsible for all matters related to the encouragement of immigration, the inspection of immigrants, tourists and other travellers seeking entry into Canada, and the exclusion of prohibited and undesirable classes. It operates through five divisions across Canada and has offices in the United Kingdom at London, Liverpool, Leeds, Bristol, Glasgow and Belfast, and an office at Dublin, Ireland. In continental Europe it has offices at Paris, Brussels, The Hague, Stockholm, Helsinki, Oslo, Copenhagen, Berne, Rome, Lisbon, Athens, Vienna, Cologne and Hamburg. The examination of immigrants at other points is carried out through the facilities of Canadian diplomatic missions.

After five years of residence in Canada an immigrant may apply to the Citizenship Branch for citizenship. The number of applicants rose from roughly 20,000 in 1954 to 65,000 in 1956 and is expected to be about 80,000 in 1957.

Since the end of World War II immigration has added approximately 1,500,000 to the population, including an estimated 200,000 children born to



People from the Old World coming to live in Canada bring with them their abilities, their special skills and their enthusiasms to blend with Canadian enterprise and culture. These people, staking their individual futures on Canada, will make their contribution to Canada's prosperity and growing independence in the economic world and to the heightening of Canadian cultural achievement.



immigrants after they settled in Canada. The number of persons entering each year was as follows:—

	No.		No.
1946.....	71,719	1952.....	164,498
1947.....	64,127	1953.....	168,868
1948.....	125,414	1954.....	154,227
1949.....	95,217	1955.....	109,946
1950.....	73,912	1956.....	164,857
1951.....	194,391	TOTAL.....	1,387,176

In the immediate postwar period most of the immigrants were the wives and children of Canadians who had served overseas, Polish ex-servicemen, Netherlands farmers whose land had been inundated by the German invasion, displaced persons from European refugee camps, and British subjects from the United Kingdom. However, during 1947 it became apparent that Canadian industry had accomplished the transition from war production to peace production without serious dislocation, that Canada had moved into an era of swift expansion, and that more workers were needed for the developments that lay ahead. Through the 1930's, a time of economic depression, the nation's birth rate had been low so that in the late 1940's there was a drop in the number of boys and girls reaching working age. Since immigration offered the only means of offsetting this deficiency, nationals of Finland, Italy, Hungary and Roumania were removed from the enemy alien category in 1947 and enabled to apply for admission to Canada. Germans were admitted from September 1950.

A dramatic chapter in the history of Canadian immigration opened in November 1956 with the movement across the Atlantic of thousands of refugees who were fleeing Hungary following the October uprising. Immediate measures were taken by the Federal Government for the quick movement by air of several thousands directly from Austria and for their reception and placement in employment with the co-operation of the provincial authorities and voluntary agencies. By the end of 1956, 3,882 Hungarian refugees had arrived and several thousands more were expected in 1957. Meanwhile, the events that led to the blocking of the Suez Canal in the final months of the year gave a new stimulus to a considerably increased emigration movement from the British Isles. At the beginning of 1957 the immigration trend to Canada from Great Britain was stronger than it has been for several years.

Of the 1,222,319 immigrants who came to Canada from 1946 to 1955, 367,705 from overseas were of British origin, 159,207 of German origin, 135,156 of Italian origin, 114,777 of Netherlands origin, 61,578 of Polish origin, 37,474 of Hebrew origin, 34,339 of Ukrainian origin, 24,152 of French origin, and 16,725 of Yugoslavian origin, while 90,752 were from the United States. Smaller groups came from more than thirty other countries. Their destination in Canada, by provinces, was as follows:—

Newfoundland (since Apr. 1, 1949).....	2,565	Manitoba.....	62,343
Prince Edward Island.....	2,490	Saskatchewan.....	36,881
Nova Scotia.....	23,495	Alberta.....	95,343
New Brunswick.....	12,827	British Columbia.....	109,347
Quebec.....	240,432	Yukon and Northwest Territories.....	563
Ontario.....	636,033		

What immigration has meant in terms of national development is apparent when the influx of new workers is viewed in relation to Canada's



total civilian labour force. From 1946 to 1950 this force increased from 4,829,000 to 5,217,000 and by 1955 to 5,558,000, a ten-year increase of 729,000. In the first period immigrants who joined the labour force numbered 199,000 accounting for nearly half the increase in the working force, and in the second period they numbered 433,000 or more than the whole increase in the working force. But for immigration, the labour force would have been drastically reduced by emigration, by the ageing of the working population and by lower participation in the working force by Canadians.

Immigrant workers as a class are more mobile than native-born workers. They have left their own countries behind, they have not yet put down deep roots at a particular place in Canada and it matters less to them where they go as long as jobs are plentiful and wages are good. For this reason they have played a large part in major projects in remote districts, harnessing hydro power, constructing highways and railroads and opening up mines.

But not by any means are all immigrants labourers. A study of immigrants who arrived in the three years ended Mar. 31, 1956 showed that 1.89 p.c. of them were owners, managers or officials, while 2.13 p.c. were professional engineers. Of all working immigrants in the period, 10.5 p.c. were professionals of one kind or another. Besides 4,944 engineers there were 2,673 teachers and professors, 1,036 physicians and surgeons, 4,275 graduate nurses and a considerable number of accountants, chemists, laboratory technicians and architects. A significant fact is that for every two engineers graduated by Canadian universities in the three years Canada gained one engineer by immigration. It is estimated that from 1951 to 1955, for every three students in professional technical fields graduated in Canada, two people in these fields entered Canada as immigrants.

Certain other facts about immigrants stand out. A large proportion of them are young married people or of marriageable age; roughly a seventh of the immigrant workers go to farms, offsetting to a significant extent the

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*One of the first groups of Hungarians to arrive in Canada late in 1956.*



traditional exodus of farm children to towns and cities; 81.6 p.c. of immigrant males and 18.6 p.c. of immigrant females over the age of 14 participate in the working force, compared with 84.3 p.c. of the native-born males and 25.4 p.c. of the native-born females over the age of 14.

And immigrants do not arrive empty-handed. Those who entered Canada from 1946 to 1955 brought with them \$550,000,000 in cash and \$190,000,000 in effects. Many of them, after they settled here, had securities and other assets transferred to them from Europe. Hundreds of them started new businesses, or new industries. While immigrants are producers, they are also consumers. By 1954, the consumer expenditures of postwar immigrants were estimated at \$1,200,000,000 a year—\$290,000,000 for food, \$100,000,000 for tobacco and alcohol, \$140,000,000 for clothing, \$160,000,000 for shelter, \$150,000,000 for household operations, \$140,000,000 for transportation, and \$200,000,000 for personal and medical care, etc. In addition immigrants in that year paid over \$100,000,000 in direct taxation and saved some \$80,000,000. Since 1954 this amount had undoubtedly increased substantially.

Apart altogether from the beneficial impact on the national economy, apart from their skills and their capital, the immigrants have brought Canada cultural and spiritual assets of tremendous value that have greatly enriched the social life of this country.

## *The Indians and Eskimos*

The Indians and Eskimos of Canada, descendants of the races that inhabited this country before the European settlers came, are of special concern to the Federal Government—the Indians since the early days of colonization when it was no longer possible for them to follow their traditional way of life, and the Eskimos in comparatively recent years as civilization has reached them in their northern habitat.

**Indians.**—There were in Canada, in 1951, 155,874 persons (Census figure) of Indian origin, that is, persons with a paternal ancestor of Indian race. However, many of these have long been assimilated into the white population and have lost their identity as Indians. The number of persons considered as Indian under Indian legislation was placed at 151,558 in 1955, and they appear to be increasing at a rate faster than that of any other segment of the population. These people live on 2,223 tracts of land nearly 6,000,000 acres in extent which have been reserved for their use and benefit. Their welfare is the responsibility of the Indian Affairs Branch of the Department of Citizenship and Immigration.

The broad objective of the Federal Government in promoting the welfare and education of the Indian population is to enable them to become increasingly self-supporting and independent members of the community. They are gradually being given more responsibility in the handling of their own affairs. Band councils, mostly elected but sometimes still chosen according to tribal custom, may make by-laws on various matters of a local nature and exercise a control over the expenditure and management of their funds and property. They operate much as do the councils of other rural municipalities. Apart from special provisions of the Indian Act, Indians are subject to federal, provincial and municipal laws the same as all Canadian citizens. They receive, also, all the benefits of national social assistance.

The occupations of these people differ according to their location. In the northern areas they still follow to a great extent their traditional nomadic existence of the trapper, but game conservation and management measures and the introduction of registered traplines are giving greater security of income. Closer to civilization the Indians are moving out of their hereditary occupations and proving their abilities in competition with others in modern agriculture, in industry, and in a variety of professions. The proportion of Indians who become satisfactorily adjusted to modern conditions is, of course, greater among those who have taken full advantage of the educational program provided for them. In the 1955-56 academic year, 1,979 Indian students attended secondary schools, colleges and special courses.

In 1955, 847 Indians were enfranchised, that is, they elected to be considered on a full citizenship basis as are other Canadian citizens.

**Eskimos.**—In the nearly 1,000,000 sq. miles of treeless tundra across the Canadian Arctic live about 10,000 Eskimos. They are believed to be descended from the last of the prehistoric immigrants from eastern Asia to North America and, as a consequence of the brutal effects of the balance of nature imposing an endless struggle for existence on these people as well as on the animals upon which they depended, they have remained few in number. Their cultural evolution has been occasioned by the necessity for survival and by their contacts with other peoples, Indian and white. With the growing movement of civilization northward, the Eskimos will play a particularly important part in the development of their land because only they, of all the people in Canada, have completely mastered the environment of the Arctic and are totally at home in it.

Indian children living on reservations are taught the basic academic subjects but are also given vocational or handicraft training that will enable them to lead useful lives in their own communities.







Each summer the Hudson's Bay Company's western Arctic supply ship takes cargo from Tuktoyatuck to points along the coast and returns with furs trapped by the Eskimos.

◀ An Eskimo deck-hand wearing a muskrat parka.



◀ Eighteen Arctic white fox pelts were used to make this evening cloak.

It is inevitable that as the Eskimos are brought ever more under the influence of civilization they must be helped to adjust their lives and thoughts to the changes involved. Even now their population is getting larger and their life expectancy longer because of the health and welfare measures undertaken on their behalf. At the same time their food resources are getting smaller since the widespread use of the rifle and the power-driven boat has made game-killing much easier. Thus the self-sufficient primitive Eskimo is passing and the nation, through the Department of Northern Affairs and National Resources and other agencies, has embarked on a program to discharge its moral responsibility to see these people through the transition period. With the nation as a whole they share family allowances, old age security and assistance and the blind, the disabled and the needy are provided for, but the objective envisaged for these people is a high standard of health,

good educational facilities and the establishment of a sound and diversified economy. At present health is a major problem because the people have built up little immunity to certain diseases. When treatment is required, the Eskimos are moved to hospitals in various parts of Canada. In 1956 more than 3,316 Eskimos, most of whom were being treated for tuberculosis, were in hospital. Extended periods of hospitalization in a vastly different environment create social problems which are being minimized as much as possible.

The problem of education for people in the more remote areas of the north is also being vigorously studied. Eskimo children in many areas are receiving education and training in new schools with modern facilities, some of which double as adult instruction and vocational training centres.

Means of providing income sources are being studied and implemented. A few industries peculiar to the north, such as boat-building, are being developed and others including the collection of eiderdown, weaving, sheep raising, tanning and preparing of specialty foods are under study. In one field the Eskimos have already had notable success—stone carving and other forms of arts and handicrafts. In 1955 they earned more than \$60,000 from carvings alone. But more important in the long run than these opportunities for self-employment are the openings created by new activities in administration, defence and industry in the north. The Eskimos are being employed on new jobs; whenever possible they are given on-the-job training for more skilled work and some have been sent south for short vocational training courses. There are many jobs at scientific and technical stations which they can do effectively and rising educational standards will open new doors to them as radio operators, weather observers and administrators. They are industrious, quick to learn and the turnover among them is low. The most important task of the Northern Service Officer is to help the Eskimo in his search for new opportunities, to develop in him a sense of local responsibility and to teach him to make his own decisions and run his own affairs.

*Eskimo instructors  
at the RCAF Survival School at  
Cambridge Bay,  
N.W.T., are past-  
masters of their  
subject—how to  
survive in the  
harsh Arctic in  
event of a forced  
landing.*





A Special Session of Parliament, called for Nov. 26, 1956, to discuss the Middle East crisis, opens with little pomp and ceremony. His Excellency the Rt. Hon. Vincent Massey, Governor General of Canada, followed by Prime Minister St. Laurent and Government Senate Leader Ross Macdonald, proceeds to the Senate Chamber to deliver the Speech from the Throne.



# The Government

CANADA is unique in the Western Hemisphere in being a kingdom among republics. As a sovereign nation of ten provinces and two territories, it is likewise unique in that it is founded on British principles of parliamentary government which, while combining monarchical forms with democratic practices, have been adapted to the needs of half a continent through the application of the federal principle.

The most distinctive feature of this federalism is the distribution of legislative powers between the Parliament of Canada and the ten provincial legislatures. Generally speaking, all matters of national concern, such as defence, external affairs, trade and commerce, banking, the raising of money by any mode of taxation, criminal law and transportation, are under the jurisdiction of Parliament, while the provincial legislatures have control over such items as property and civil rights, education, hospitals, welfare institutions, municipal institutions, public lands, and direct taxation within the provinces for provincial purposes.

## The Parliamentary System

That the Canadian Constitution is founded on the British parliamentary system is evident in the fact that Parliament embraces the Queen, the Senate and the House of Commons; that the executive and legislative powers are in close identification through the control of administration by leaders of the parliamentary majority; and that the judiciary is virtually independent of control by either the executive or legislative branches of government. The Crown is the unifying symbol of all three spheres of power.

**The Nation.**—Her Majesty Queen Elizabeth II is "Queen of Canada", though her personal participation in the function of the Crown for Canada is necessarily reserved to such rare occasions as a royal visit or the periodic appointment of a personal representative on the advice of her Canadian Ministers. The Queen reigns but does not rule; rather, she symbolizes the continuity of the ancient traditions of the British constitutional monarchy and indeed of the law and custom of the Canadian Constitution.

The personal representative of the Queen in Canada is the Governor General, appointed by Her Majesty entirely on the advice of the Prime Minister of Canada and usually for a term of five years. He exercises such formal authority as summoning, proroguing and dissolving Parliament and assenting to Bills in the Queen's name. Canada's present Governor General, the Right Honourable Vincent Massey, C.H., is the first Canadian to hold this high office. He was appointed on Jan. 24 and assumed office on Feb. 28, 1952.

The active Canadian executive authority for controlling the exercise of the powers of the Crown resides in the Cabinet or Ministry composed of Members of Parliament, who hold office so long as they possess the confidence of the selected representatives of the people in Parliament.

A new House of Commons is elected at least once every five years under an adult franchise conferred upon Canadian citizens or British subjects, male and female, who have been resident in Canada for twelve months prior to polling day. A readjustment of representation follows each decennial Census of Canada. Provincial representation is now as follows:—

Newfoundland.....	7	Alberta.....	17
Prince Edward Island.....	4	British Columbia.....	22
Nova Scotia.....	12	Yukon Territory.....	1
New Brunswick.....	10	Mackenzie District, Northwest Territories.....	1
Quebec.....	75		
Ontario.....	85	TOTAL.....	265
Manitoba.....	14		
Saskatchewan.....	17		

The leader of the national party that has won a majority of the seats in a newly elected House of Commons forms a Ministry or Cabinet, the members of which are appointed by the Governor General but selected by the Prime Minister from among his party colleagues in such manner as to ensure as far as possible representation of the several regions of the country and its principal cultural, religious and social interests. The Cabinet is responsible for determining all important policies and securing the passage of such legislation, financial measures and administrative provisions as their supporters may approve. Members of the Cabinet as at Jan. 1, 1957, and the portfolios held by them were as follows, listed according to precedence:—

Rt. Hon. Louis Stephen St. Laurent.....	Prime Minister and President of the Queen's Privy Council for Canada.
Rt. Hon. Clarence Decatur Howe.....	Minister of Trade and Commerce and Minister of Defence Production.
Rt. Hon. James Garfield Gardiner.....	Minister of Agriculture.
Hon. Paul Joseph James Martin.....	Minister of National Health and Welfare.
Hon. James Joseph McCann.....	Minister of National Revenue.
Hon. Milton Fowler Gregg.....	Minister of Labour.
Hon. Lester Bowles Pearson.....	Secretary of State for External Affairs.
Hon. Stuart Sinclair Garson.....	Minister of Justice and Attorney General.
Hon. Robert Henry Winters.....	Minister of Public Works.
Hon. Hugues Lapointe.....	Minister of Veterans Affairs and Postmaster General.
Hon. Walter Edward Harris.....	Minister of Finance and Receiver General.
Hon. George Prudham.....	Minister of Mines and Technical Surveys.
Hon. James Sinclair.....	Minister of Fisheries.
Hon. Ralph Osborne Campney.....	Minister of National Defence.
Hon. William Ross Macdonald.....	Solicitor General of Canada and Leader of the Government in the Senate.
Hon. John Whitney Pickersgill.....	Minister of Citizenship and Immigration.
Hon. Jean Lesage.....	Minister of Northern Affairs and National Resources.
Hon. George Carlyle Marler.....	Minister of Transport.
Hon. Roch Pinard.....	Secretary of State of Canada.



The Rt. Hon. C. Howe, Minister of Trade and Commerce meets formally with Japanese External Affairs Minister Shigemitsu (left) and the Hon. T. Davis, Canadian Ambassador to Japan, during Howe's tour of Japan in the autumn of 1957.

Behind the majesty of the Peace Tower on Parliament Hill in Ottawa is conducted the serious business of making laws for the peace, order and good government of this great nation of Canada.



The Senate or Upper House of the Parliament of Canada shares with the House of Commons the responsibility for the enactment of all federal legislation in that Bills must pass both Houses before receiving Royal Assent through the Governor General. Yet the influence of the Senate on legislation is immeasurably less than that of the Commons in which most public Bills are introduced by the Ministry and to which the latter is responsible. The most striking evidence of this fact is that any Bill for the expenditure of any public money or the imposition of any tax must originate in the elected House, by custom, through the Cabinet. Nonetheless, the Senate has the power to perform a valuable service to the nation in amending and delaying the passage of measures that might result from sudden shifts in public opinion or party strength.





*Ottawa, the Nation's Capital. In 1857, when it was a newly incorporated city with a population of about 10,000, it was selected by Queen Victoria as the seat of the Government of Canada. Today the metropolitan area of Ottawa harbours about 345,000 persons, a good portion of whom are employed in the Civil Service. Though self-governing, the physical development of the city and its environs is under the active direction of the Federal Government.*

Canadian Senators are summoned for life by the Governor General, on the nomination of the Prime Minister, with equality of representation for four regional divisions. The representation in the Senate by divisions and provinces is as follows:—

Ontario.....	24	Western Provinces.....	24
Quebec.....	24	Manitoba.....	6
Atlantic Provinces.....	30	British Columbia.....	6
Nova Scotia.....	10	Alberta.....	6
New Brunswick.....	10	Saskatchewan.....	6
Prince Edward Island.....	4		
Newfoundland.....	6	TOTAL.....	102

Yukon Territory and the Northwest Territories lack representation at present in the Senate.

While the Ministers of the Crown carry the political responsibilities of their respective departments, the Federal Civil Service forms the staffs of

the twenty departments and of various boards, commissions, bureaux and other agencies of the Government. The day-to-day administration of a department is handled by a permanent head, usually known as Deputy Minister. The majority of the civil servants are recruited, classified and promoted by the Civil Service Commission of Canada.

**The Provinces.**—Similar political institutions and constitutional usages operate in the governments of the ten provinces as in that of the nation as a whole. In each province the Queen is represented by a Lieutenant-Governor appointed by the Governor General in Council, usually for a term of five years. The powers of the Lieutenant-Governor in the provincial sphere are essentially the same as those of the Governor General in the federal sphere.

The Legislature of each of the provinces comprises, in addition to the Lieutenant-Governor, an elected Legislative Assembly and, for Quebec only, a Legislative Council of 24 members appointed for life by the Lieutenant-Governor in Council. The franchise in provincial elections is granted, generally speaking, to every adult 21 years of age or over, although in Saskatchewan, Alberta and British Columbia the age is 18, 19 and 19, respectively. The conventions of Cabinet government operate in the Legislative Assembly of each of the provinces as in the House of Commons at Ottawa.

**The Territories.**—The vast northern and sparsely populated regions of Canada lying outside the ten provinces and comprising Yukon Territory and the Northwest Territories have attained both elected representation in the House of Commons and a measure of local self-government. The local government of Yukon Territory is composed of a chief executive, styled Commissioner,

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*New Provincial Government administration building at Regina, Sask.*





appointed by the Federal Government, and a locally elected Legislative Council of five members. The government of the Northwest Territories is vested in a Commissioner (who is the Deputy Minister of the Department of Northern Affairs and National Resources) assisted by a Council of nine members of whom four are elected by popular franchise in the Territories and five are appointed by the Federal Government from among federal officials.

**Local Government.**—As local government at the municipal level falls under the jurisdiction of the provinces, there are ten distinct systems of municipal government in Canada, as well as many variations within each system. The variations are attributable to differences in historical development and in area and population density of the 4,220 incorporated municipalities. Possessing the power exclusively to make laws respecting municipal institutions, the provincial legislature of each province has divided its territory into varying geographical areas known generally as municipalities and more particularly as counties, cities, towns, villages, townships, rural municipalities, or municipal districts. Municipalities are incorporated by provincial legislation and have various powers and responsibilities suited to their classification. A municipality is governed by an elected council whose head may be called the mayor, reeve, warden or overseer, and the other citizens who are its members may be known as controllers, aldermen or councillors.

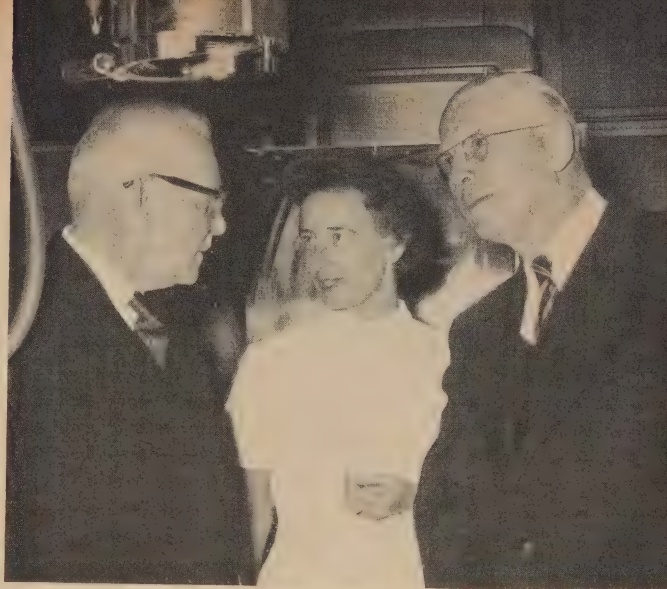
The responsibilities of the municipalities are generally those most closely associated with the citizen's everyday life, his well-being and his protection. To maintain these services, the municipality is empowered to place substantial tax levies on the citizen's property.



*The Mayor, in Canada's larger municipalities, is the chief officer, assisted in council by a number of aldermen or councillors. Although many variations exist in local government form and power, the fundamental principles are the same—the conduct of public business by representatives chosen by the people.*



*The division of financial responsibility for health services between the three levels of government has become difficult to define but in defraying today's high cost of new hospital facilities each usually participates. The Rt. Hon. Louis S. St. Laurent, Prime Minister of Canada, and the Hon. Leslie M. Frost, Premier of Ontario, discuss with a technician apparatus installed in a new hospital wing.*



**The Judiciary.**—The Canadian judiciary interprets the law and administers justice. The provinces are authorized to administer justice in the territories under their jurisdiction, including the organization of civil and criminal courts and the establishment of procedure in civil matters in those courts. Legislation concerning criminal law and the procedure in criminal matters is under the jurisdiction of the Parliament of Canada.

Judges of the superior, district and county courts in each province, except those of the courts of probate in Nova Scotia and New Brunswick, are appointed by the Governor General in Council and their salaries, allowances and pensions are fixed and paid by the Parliament of Canada.

The Supreme Court of Canada is the court of final appeal in Canada, and exercises general appellate jurisdiction throughout the nation in civil and criminal cases. The jurisdiction of the Exchequer Court extends to cases embracing claims made by or against the Crown in the right of Canada. The Chief Justice of Canada and the puisne judges of the Supreme and Exchequer Courts are appointed by the Governor General in Council.

## **Public Finance**

In assigning legislative power to the Parliament of Canada and the Legislatures of the provinces, the British North America Act of 1867 allocated to the former "The raising of money by any mode or system of Taxation" and to the latter "Direct Taxation within the Province in order to the raising of a Revenue for Provincial Purposes". It also allocated exclusively to the provinces "Municipal Institutions in the Province" and specified that "In and for each Province the Legislature may exclusively make laws in relation to Education", subject and according to certain provisions protecting the rights of denominational schools. The powers assigned to the Parliament of Canada and to the provincial Legislatures, including those for the raising of revenue, are briefly as follows: all those matters not specifically assigned to the provinces and of national concern were placed under the jurisdiction

of the Parliament of Canada, while those of private and local interest were to be administered by the provincial Legislatures. The provinces in turn may delegate certain powers of government and of raising of revenue to various local authorities, largely municipal and educational.

The number, volume and diversity of government services, and consequently the amount and sources of revenues, have expanded tremendously with the passing of the years, and are likely to go on expanding in future. This situation has arisen from growth of population, increased wealth, industrialization and other technological developments, and from changing social concepts. Governments now provide services and draw on tax sources undreamed of at the time of Confederation. As a result of these changes and of the stresses and strains of war, depression, expansion and inflation, there has developed a greater interest in public finance than ever before and more discussion of the problems and their possible solutions. In recent years a number of conferences have been held between the federal and provincial governments from which emanated certain tax agreements, though these have not always proven acceptable to all provincial governments. There has also been adjustment of financial arrangements between provincial and local governments from time to time resulting in some shifts of particular responsibilities, in whole or in part, in changes in grants or other direct aid, and in new tax sources being made available.

## ***Finances of the Federal Government***

The financial operations of the Federal Government involve more than "good housekeeping", that is, the proper allocation of the tax burden, economy of expenditure and well-planned debt management. In the federal field there is sometimes a different emphasis due to wartime stress, to actions intended to relieve depression or halt inflation, or to social philosophy, all of which may be summed up in the phrase "money management". The latter is not specifically mentioned in the British North America Act, but nevertheless it has long been a function of sovereign states, more fully understood as the study of the economics of finance has developed.

In the more routine aspects of its financial operations the Government of Canada levies direct and indirect taxes, of which the income tax, individual and corporation, yields the largest return. Excise taxes (including a general sales tax), excise duties and customs duties also produce a very substantial sum. Succession duties and some other taxes yield relatively minor amounts and certain non-tax revenues, special receipts and credits accrue each year from financial transactions outside the tax fields. A 2-p.c. sales tax, a 2-p.c. individual income tax and a 2-p.c. corporation income tax are levied in addition to the regular taxes from these sources to sustain the Old Age Security Fund, from which pensions are paid to all persons over seventy years of age.

The income tax has been the chief source of revenue of the Federal Government since before World War II. Rates of tax on individual incomes were increased considerably and other forms of income tax were introduced to help finance the War but after hostilities ceased a succession of reductions in rates and increases in exemption allowances relieved some of the burden



*An RCAF training and proving station for men and missiles, complete with a network of buildings and jet runways and a self-contained townsite, has been transported piece by piece and deposited at Cold Lake in northern Alberta, 145 miles northeast of Edmonton. Its job is the proving and evaluating of aircraft armament and firing controls.*

for the taxpayer. Taxes on corporation incomes were also reduced and the excess profits tax was abolished. However, the expansion of personal income, the growth of the labour force and the growth of industry generally in the postwar years has offset the effect of the reduction in rates and the revenue from income taxes continues to grow each year.

For personal income tax purposes, the present exemptions from income in respect of marital status and dependants, which have been in effect since 1949, are: \$1,000 basic exemption with additional exemptions of \$1,000 for persons taxed as married and \$500 for persons 65 years of age or over; maximum exemptions for dependants of \$150 each are allowed, or \$400 if the dependant is not eligible for family allowance. The rate structure for 1956 ranged from 15 p.c. on the first \$1,000 of taxable income to 78 p.c. on income in excess of \$400,000, including the Old Age Security Tax of 2 p.c. up to \$60.

By far the largest item of expenditure of the Government of Canada is defence services. Other expenditures of major significance are made for health and social welfare, veterans' pensions and other benefits, transportation and natural resources. Payment of debt charges and tax agreement payments to the provinces are also major items. The output for defence, health and welfare, veterans' benefits, debt charges and payments to provinces has, during and since the War, caused much of the great growth in federal expenditure.



*Electronic optical tracking equipment records flight characteristics of rockets and other missiles fired from CF 100's over the vast weapons range at Cold Lake.*



# Revenue and Expenditure of the Federal Government, Year Ended Mar. 31, 1955

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes—		Defence services.....	1,515,699
Income—		Veterans' pensions and other	
Corporations.....	1,066,586	benefits.....	233,107
Individuals.....	1,284,347	General government.....	196,866
Interest, dividends and other		Protection of persons and pro-	
income going abroad.....	61,264	perty.....	54,602
General sales.....	715,269	Transportation and communi-	
Excise duties and special excise		cations.....	159,837
taxes—		Health.....	54,501
Alcoholic beverages.....	128,689	Social welfare.....	816,644
Tobacco.....	214,594	Recreational and cultural ser-	
Automobiles.....	73,225	vices.....	15,439
Other commodities and ser-		Education.....	21,536
vices.....	61,477	Natural resources and primary	
Customs import duties.....	397,228	industries.....	149,416
Succession duties.....	44,768	Trade and industrial develop-	
Other.....	15,480	ment.....	17,293
Total Taxes.....	4,062,927	National Capital area planning	
		and development.....	3,391
		Debt charges (excluding debt	
		retirement).....	432,146
		Payments to government enter-	
		prises.....	79,615
Privileges, licences and permits..	15,334	Payments to provincial and	
Sales and services.....	45,620	municipal governments—	
Fines and penalties.....	918	Federal—provincial taxation	
Receipts from government enter-		agreements.....	327,967
prises.....	50,840	Other.....	35,031
Other revenue.....	15,038	Other expenditure—	
		International co-operation	
		and assistance.....	251,131
		Other.....	44,242
		Non-expense and surplus pay-	
		ments.....	10,696
Non-revenue and surplus receipts	13,792		
Total General Revenue....	4,204,469	Total General Expenditure	4,419,159

## Finances of the Federal Government, Year Ended Mar. 31, 1868-1956

NOTE.—These figures are derived from the *Public Accounts of Canada* and differ from those in the preceding table. Revenue and expenditure in this table are on a gross basis and net debt here represents the excess of gross debt over net active assets.

Year	Total Revenue	Per Capita Revenue <sup>1</sup>	Total Expenditure	Per Capita Expenditure <sup>1</sup>	Net Debt at End of Year	Net Debt Per Capita <sup>2</sup>
	\$	\$	\$	\$	\$	\$
1868.....	13,687,928	3.95	13,716,422	3.96	75,757,135	21.58
1871.....	19,375,037	5.34	18,871,812	5.21	77,706,518	21.06
1881.....	29,635,298	6.96	32,579,489	7.66	155,395,780	35.93
1891.....	38,579,311	8.07	38,855,130	8.13	237,809,031	49.21
1901.....	52,516,333	9.91	55,502,530	10.47	268,480,004	49.99
1911.....	117,884,328	16.87	121,657,834	17.40	340,042,052	47.18
1921.....	436,888,930	51.06	528,899,290	61.82	2,340,878,984	266.37
1931.....	357,720,435	35.04	441,568,413	43.26	2,261,611,937	217.97
1941.....	872,169,645	76.63	1,249,601,446	109.80	3,648,691,449	317.08
1943.....	2,249,496,177	193.02	4,387,124,118	376.45	6,182,849,101	524.19
1951.....	3,112,535,948	226.99	2,901,241,698	211.58	11,433,314,948	816.14
1952.....	3,980,908,652	284.17	3,732,875,250	266.46	11,185,281,546	775.14
1953.....	4,360,822,789	302.21	4,337,275,512	300.57	11,161,734,269	755.14
1954.....	4,396,319,583	297.43	4,350,522,378	294.33	11,115,937,064	731.55
1955.....	4,123,513,300	271.37	4,275,362,888	281.37	11,263,080,154	721.95
1956.....	4,400,046,639	282.04	4,433,127,636	284.15	11,280,368,964	706.35

<sup>1</sup> Based on estimated population as at June 1 of the immediately preceding year.

<sup>2</sup> Based on estimated population as at June 1 of same year.

The Federal Government is building an \$8,000,000 radar chain across Canada to ensure greater safety for civilian aircraft. Stations are being set up at 15 major airports from Atlantic to Pacific, each of which will have a radius of 200 miles up to an altitude of 60,000 feet.



Giant 40-foot antenna, specially designed for the airport and airway surveillance radar systems to be used in air traffic control.

Geographic indications that permit the operator to pinpoint aircraft positions are electronically superimposed on the face of the radar scope by flipping a switch. Detection is simplified because of the system's ability to select and reflect only moving objects.

Revenue of the Government of Canada reached an all-time record in the year ended Mar. 31, 1956 of \$4,400,000,000, and the highest expenditures were made in the year ended Mar. 31, 1944, during World War II (\$5,322,000,000). The net debt reached a peak of \$13,421,000,000 at Mar. 31, 1946, but budgetary surpluses for each of the next eight years reduced the figure to \$11,116,000,000 by Mar. 31, 1954. Budgetary deficits in the following two years increased the net debt to \$11,280,000,000 by Mar. 31, 1956.

Inflation in the general price level and population growth through the years have reduced the significance of the size of the Government of Canada debt, and the great expansion of the Canadian economy allows the country to support the present debt on a sound financial basis. On Mar. 31, 1939, the net debt amounted to 60.2 p.c. of the gross national product; by 1946 this had risen to 113.3 p.c. but by Mar. 31, 1956, the net debt amounted to only 42.1 p.c. of the national product.

The outstanding unmatured funded debt (including treasury bills) of the Government of Canada at Mar. 31, 1956, amounted to nearly \$15,408,000,000. The portion of the unmatured funded debt payable in Canada was 97.7 p.c., the portion payable in London amounted to 0.3 p.c. and in New York 2.0.

## Provincial Finance

As already mentioned, certain agreements have been in effect in recent years between the Government of Canada and the provincial governments. The first of these was made early in the second world war. In order to provide revenue for heavy national expenditures and at the same time control inflationary tendencies, the provincial governments vacated the income and corporation tax fields in favour of the Federal Government for the duration of the War and a limited period thereafter, after agreeing to the terms of a tax rental fee from the Federal Government. These agreements of 1942 were succeeded by Tax Rental Agreements, 1947, which were, in turn, succeeded by Tax Rental Agreements, 1952. Under the 1952 Agreements, all provinces except Ontario and Quebec agreed to lease their personal and corporation income taxes, special corporation taxes and succession duties to the Government of Canada in exchange for a rental fee. Ontario, which had not entered into the 1947 Agreements, also agreed to lease personal and corporation income taxes and special corporation taxes but retained the right to levy succession duties. The Province of Quebec, which since 1947 has levied corporation and corporation income taxes, in 1954 imposed its own personal

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*A common sight in Canada today—a new housing development, financed largely through chartered bank mortgage loans guaranteed by the Federal Government. However, the rapid extension of urban centres has placed a tremendous strain on municipal governments which must provide the necessary services for these new communities—streets, lights, sewage and sanitation services, police and fire protection, transportation and so on.*





income tax approximating 10 p.c. of that levied by the Federal Government. The 1952 Agreements run to Mar. 31, 1957, and a Federal-Provincial Conference was held in October 1955 to consider future fiscal relations. Certain proposals were put forward by the Federal Government and during 1956 these have been under consideration by provincial authorities.

**Net General Revenue and Expenditure of Provincial Governments,  
Year Ended Mar. 31, 1955**

Province	Revenue	Expenditure	Province or Territory	Revenue	Expenditure
	\$'000	\$'000		\$'000	\$'000
Nfld.....	32,851	39,086	Sask.....	99,651	96,145
P.E.I.....	8,154	8,822	Alta.....	175,097	138,303
N.S.....	51,418	52,638	B.C.....	199,658	178,585
N.B.....	50,788	50,990	Yukon.....	1,632	1,313
Que.....	339,108	349,983	N.W.T.....	707	641
Ont.....	399,058	420,999			
Man.....	56,706	48,552	<b>Totals.....</b>	<b>1,414,828</b>	<b>1,386,057</b>

**Analysis of Net Revenue and Expenditure of Provincial Governments,  
Year Ended Mar. 31, 1955**

Source	Revenue	Function	Expenditure
	\$'000		\$'000
Taxes.....	566,693	General government.....	55,790
Federal tax rental agreements...	327,954	Protection of persons and property.....	78,487
Privileges, Licences and Permits—		Transportation and communications.....	371,339
Motor vehicles.....	94,371	Health.....	234,901
Natural resources.....	184,833	Social welfare.....	123,626
Other.....	48,056	Recreation and cultural services	9,073
Sales and services.....	22,654	Education.....	274,552
Fines and penalties.....	4,591	Natural resources and primary industries.....	106,672
Other Governments—		Trade and industrial development	7,772
Government of Canada—share of income tax on power utilities.....	7,294	Local government planning and development.....	2,705
Subsidies.....	24,358	Debt charges.....	128,288
Municipalities.....	243	Contributions to local governments.....	36,672
Government enterprises.....	130,999	Contributions to government enterprises.....	9,414
Other revenue.....	683	Other expenditures.....	8,891
Non-revenue and surplus receipts	2,099	Non-expense and surplus payments.....	9,285
<b>Total.....</b>	<b>1,414,828</b>	<b>Total.....</b>	<b>1,457,467</b>
<b>SUMMARY OF LIQUOR CONTROL REVENUE</b>		<b>Less Debt Retirement (included above).....</b>	<b>71,410</b>
(included above)—		<b>Total, exclusive of Debt Retirement.....</b>	<b>1,386,057</b>
Sales tax.....	1,902		
Permits.....	30,635		
Fines and penalties.....	792		
Profits.....	127,549		
Confiscations.....	53		
<b>TOTAL.....</b>	<b>160,931</b>		

At the present time the payments of the Federal Government to the provincial governments constitute a major revenue source of the nine agreeing provinces. Other main sources are sales taxes on motor fuel and fuel oil,

general sales taxes, liquor profits, and privileges, licences and permits. Corporation taxes and taxes on personal and corporation income provide a considerable portion of the revenue of the Province of Quebec. The largest expenditures of the provinces are for transportation (mainly highways), health and social welfare, education, and natural resources and primary industries.

Direct and indirect debt of provincial governments, less sinking funds, as at Mar. 31, 1955, was a little less than three times the net general revenue of the same year, direct debt averaging out to \$157.44 per capita, and indirect debt to \$96.88 per capita. Total debt of the provinces has been increasing for a number of years, though the qualification mentioned as to the burden of federal debt—that it has become lighter because of inflation and increased population—has some application to provincial debt as well.

## ***Municipal Finance***

Incorporated municipalities include within their boundaries only a small portion of the area of Canada but they serve most of the population. Outside lie a few school districts and in parts of municipally unincorporated territory some local services are provided by the provincial government concerned. A great part of the area of Canada has not sufficient density of population to warrant even these limited activities. In most provinces the municipalities levy the local taxation for school authorities but exercise little or no control over school administration or finance. In much of Quebec and Prince Edward Island and in limited areas of some other provinces, school authorities levy and collect local taxes. There is no municipal taxation for school purposes in Newfoundland, as schools are denominational and largely financed by the Province.

The largest source of revenue for municipalities and other local authorities, yielding over two-thirds of the total, is the real property tax. Also varying in importance from province to province, are business and other taxes, licences and permits, public utility contributions, and provincial grants and subsidies. Of municipal expenditure from current revenue almost a third goes to support local schools. Other major expenditures are for public welfare, roads and streets, protection to persons and property, and debt charges. Increasingly substantial sums of borrowed capital have been expended in recent years in an attempt to catch up and keep up with the streets, sanitation systems, water systems and other municipal services required by urban municipalities, whose population and development have increased at a rate far beyond that of the remainder of the country.

Municipal debt in most urban areas has increased at such a rate as to offset the inflationary and population growth factors which have held down the burden of federal and provincial debt, though this situation probably applies in many rural municipalities. Provincial governments supervise the issuance of municipal debt, and limit it by legislation or by regulatory formulae. In some instances, provinces are now aiding municipalities and schools in their capital projects by various methods, such as by outright grants, loans, sharing of debt charges, and assumption of debt. The whole question of municipal finance and municipal-provincial education relationships is undergoing much thought and review.



*Few places in the New World possess the appeal of the City of Quebec. Beautiful in setting, rich in history and quaint in customs, it holds a unique place among Canadian cities. Here Champlain started Canada's first permanent settlement in 1608 and here events transpired that changed the future of America. Quebec today is fulfilling its role in the modern world, but the narrow winding and precipitous streets of the Old City, its ancient buildings, its fortresses and walls still relate the tales of long ago.*





*"Behold, each thing  
Is ready for the moulding of our hand,  
Long have they all awaited our command."*

Laurentian  
by Mal

# CANADA'S RESOURCES and THEIR DEVELOPMENT



THE Land is the basis of the people's livelihood and prosperity, setting certain limits on their occupations through location, size, surface relief, soil, vegetation and prevailing climates but offering in return untold opportunities through the same physical factors. Canada first springs to mind, perhaps, as northness and rockiness. It is short intense summers and long austere winters; it is the rugged uplands of Ontario and Quebec, the rounded hills and gentle valleys of the Maritimes, the fertile St. Lawrence valley, the horn-headed peaks of British Columbia and Yukon, the broad horizons of the prairies, the wind-swept rocks of Newfoundland and the limitless bareness of the Arctic. Canada is also the water and the wood; it is the melting of winter snows down innumerable freshets, the sound of cataracts on turbulent streams, the gleam of countless lakes; the mantle of forest that reaches from coast to coast; everywhere a freshness and a wildness that cannot be dispelled.

This is the land of Canada, a vast panorama of wilderness, which, by the toil, perseverance and imagination of its people, has been moulded into a great nation, whose distances have been captured by railways and aircraft, whose rivers have been harnessed for power or made navigable for transport, whose forested areas have been penetrated by logging and lumber trails or cleared for agriculture, prairie grass giving way to waving grain and buffalo to grazing cattle and sheep, and from whose rocks are being wrested treasures untold. A land whose pattern of future greatness has been well and truly laid.

# Land, Water and Climate

Canada has an enviable location in a world where geography would seem to have conspired to emphasize the north. It ranges from latitude  $41^{\circ} 41'$  at Middle Island off the shores of Lake Erie in the south to  $83^{\circ} 07'$  at Cape Columbia on the tip of Ellesmere Island 485 miles from the North Pole, occupying the northern half of North America. About half of the land mass of the world lies between these latitudes in the northern hemisphere, including part of the United States, the United Kingdom, France and Germany, other north European states, the Union of Soviet Socialist Republics and the northern extension of China and Japan. Among the great powers only India lies wholly to the south. Most of these northern countries open out upon the North Atlantic, or the northern Pacific, or the Arctic oceans which, with their various arms, have become the strategic seas of today. Indeed, Canada is in one of the most strategic positions in the world, lying directly between the United States and the U.S.S.R. and facing the densest populations of the world in Western Europe and the Far East.

In size Canada has an area of 3,850,262 sq. miles and is second only in this respect to the U.S.S.R. which has 8,649,821 sq. miles. It is larger than the United States and Alaska with 3,608,790 sq. miles, and Brazil with 3,287,204 sq. miles and is more than forty times the size of the United Kingdom.

Canada is very simply and almost symmetrically constructed. It consists of three principal structures—a central upland sloping on its flanks to interior lowlands which lead in turn to marginal mountains. The heart of Canada is made up of a great mass of very ancient and for the most part very hard rocks known as the Canadian Shield. This vast V-shaped area of about 1,850,000 sq. miles includes the Labrador portion of Newfoundland and most of Quebec and northern Ontario, and its western boundary runs diagonally from Lake of the Woods northwest to the Arctic Ocean near the mouth of the Mackenzie River. It is a very complex structure with a rough broken surface gouged out in the weaker parts or stripped on the higher by ice. All its hills rise to about the same height and its valleys are generally filled with lakes. Tilted at the edges, it sinks at the centre below the waters of Hudson Bay and breaks up in the north to become part of the Arctic Archipelago. The role of the Shield in Canadian life is a dominant one. It is a great storehouse of wealth, rich in uranium, nickel, cobalt, lead, zinc, titanium and asbestos, some of the most valuable and most useful minerals. Its many rivers, flowing outwards toward the Great Lakes, the St. Lawrence or the Atlantic, follow precipitous courses and are tremendous sources of hydro power. Its forest coverage, dense in the southern portions and thinning out until the timber line is reached around the 59th parallel, have been of great significance in the industrialization of the country.

Flanking the Shield are the interior lowlands. To the south and south-east is the Great Lakes-St. Lawrence Lowlands region, a flat and fertile plain occupying the triangular area lying between Georgian Bay and Lake Ontario and taking in the St. Lawrence valley eastward as far as Quebec City. West of the Shield is the Western Interior Lowlands, part of the great plains of the interior of the continent that stretch from the Gulf of Mexico to the Arctic Ocean. In Canada the region occupies the depression between the





*New Brunswick with its 600 miles of sea coast is a land of rugged cliffs and sea beaches, of woodland lakes and winding rivers, its picturesque towns and villages shielded by rolling hills.*

Shield and the Rocky Mountains and is about 800 miles wide at the United States border, tapering to 100 miles at the mouth of the Mackenzie River. The plains have three levels, sloping eastward from an elevation of 4,000 feet in western Alberta to about 500 feet in southern Manitoba. These Lowland areas, both east and west, are regarded as the basis of Canada's agricultural wealth—wheat and beef in the west, dairy products and fruit in the east. But they do have other important resources. Vast power reserves and natural transportation facilities have assisted in making the St. Lawrence Lowlands Canada's most industrialized area, now supporting nearly two-thirds of the country's population. The Western Interior Lowlands lie above Canada's major sources of coal, gas and oil.

The structural geography of Canada is completed by mountainous regions that lie on the Atlantic, Pacific and Arctic margins. On the Atlantic the Canadian Appalachians are part of the great range of old mountains extending from the island of Newfoundland through the Maritime Provinces, southeast Quebec and into the United States. Elevation over the whole area is moderate and the river valleys, with the fertile plains of the sheltered basins, are particularly suitable for cultivation. Important deposits of base metals, non-metallics and coal occur in widely separated areas and the hills of the region are forest-clad.

In the Yukon and British Columbia, Canada has a portion of the great Cordilleran system of mountains that borders the Pacific Coast of North, Central and South America. In Canada the region has an average width of 400 miles and an area of 600,000 sq. miles and is made up of three zones. On the east is the Rocky Mountain Range with elevations of from 8,000 to 13,000 feet; on the west the Coast Range rises abruptly from the water edge to peaks of from 5,000 to 19,850 feet; and between the two is a belt of upland and mountainous country. The whole region is complex in structure and has a wide range of resources. Most important are the copper, lead and zinc metals found in abundance, as well as coal, oil and gas. To this wealth of minerals may be added a vast hydro-electric potential and dense, extensive forests. Agriculture is limited except in the Fraser delta and in some of the interior valleys.

A system of marginal mountains, known as the Innuitians, flank the Shield to the north beyond which is a coastal plain dipping down to the Arctic Ocean. The plain is interrupted by a number of remarkable piercement domes which may be associated with oil.

Thus Canada's topographical barriers follow a definite north-south pattern making somewhat more difficult an east-west development. However, there are other geographical forces—such as climatic, soil and vegetation zones—which have drawn together regions that have been separated by relief. But most important are the east-west and west-east flowing rivers that cross Canada—the St. John affording a route from the Atlantic across the Appalachians down to the interior lowlands; the St. Lawrence-Great Lakes waterway offering a highway across the Shield to Lake of the Woods and the margin of the prairies; the South and North Saskatchewan leading to passes across the Rockies; and the Thompson-Fraser through the Coast Range to the Pacific.

## Land and Water Areas

The following table shows the land and water areas of Canada distributed by provinces.

*Approximate Land and Fresh-Water Areas of the Provinces and Territories*

Province or Territory	Land	Fresh Water	Total
	sq. miles	sq. miles	sq. miles
Newfoundland (incl. Labrador).....	147,994	7,370	155,364
Prince Edward Island.....	2,184	- -	2,184
Nova Scotia.....	20,743	325	21,068
New Brunswick.....	27,473	512	27,985
Quebec.....	523,860	71,000	594,860
Ontario.....	333,835	78,747	412,582
Manitoba.....	211,775	39,225	251,000
Saskatchewan.....	220,182	31,518	251,700
Alberta.....	248,800	6,485	255,285
British Columbia.....	359,279	6,976	366,255
Yukon Territory.....	205,346	1,730	207,076
Northwest Territories.....	1,253,438	51,465	1,304,903
<b>Canada.....</b>	<b>3,554,909</b>	<b>295,353</b>	<b>3,850,262</b>

And the total area classified by tenure is as follows:—

	Sq. miles		Sq. miles
Alienated from the Crown or in process of alienation.....	376,525	Provincial lands other than provincial parks and provincial forest reserves.....	1,792,834
Federal lands other than leased lands, National Parks, Indian reserves and forest experiment stations.....	1,527,083	Provincial parks.....	42,294 <sup>1</sup>
National Parks.....	29,147	Provincial forest reserves..	74,688 <sup>1</sup>
Indian reserves.....	9,173		
Federal forest experiment stations.....	186	TOTAL AREA.....	3,850,262

<sup>1</sup> Duplication of 1,668 sq. miles in Manitoba, see p. 65.

The high figure for federal land is accounted for by the fact that it includes the total area of the Yukon and Northwest Territories. All unalienated lands within the provinces are administered by the provincial governments. Of Canada's land area of 3,554,909 sq. miles, 7.6 p.c. is occupied agricultural land—under crop, in woodland or unimproved. Forested land, both productive and unproductive, accounts for 44 p.c. of the total and the remainder includes rock, muskeg, urban land, road allowances, etc. The great expanse of rocky terrain, while not productive in the sense of plant life, is nevertheless extremely important in its contribution to the Canadian economy.

The inland waters of Canada are very extensive, constituting 7.7 p.c. of the area of the country. The greater portion of the country is lavishly strewn with lakes of all sizes, from bodies of water hundreds of miles long and hundreds of feet deep to ponds lost to sight in the forest. The largest and most numerous lakes occur within five hundred to a thousand miles of Hudson Bay, the most outstanding being of course the Great Lakes whose combined area of 95,170 sq. miles is shared with the United States. But many other lakes, all of them within the Canadian Shield, have the right to be called

highway lead-  
ing from the sea-  
port of Haines,  
Alaska, to link  
up the Alaska  
highway in Yukon  
one of the most  
spectacular drives  
in Canada —  
through heavy  
forest up to the  
timberline, over  
pine meadows  
and into the com-  
pany of glaciers.  
Here the road  
reaches its summit  
under the stern  
gaze of the Three  
Guardmen.





“great lakes”. Lake Winnipeg, Great Slave Lake and Great Bear Lake range in area from 9,000 sq. miles to 12,000 sq. miles. In fact many parts of the Shield have the appearance of a drowned area with only the ridge tops appearing, water from one basin simply spilling over into another below.

In Eastern Canada, the Great Lakes and St. Lawrence drainage basin dominates all others and forms an unequalled system of navigable waterways through a region rich in natural and industrial resources for a distance of 2,280 miles into the heart of the Continent. Its tributaries, most of which have lakes that serve as reservoirs, have large developed and potential power resources. In the mid-west, the rivers running through the settled areas drain into Hudson Bay. The Mackenzie River which drains Great Slave Lake is, with its headwaters, the longest river in Canada (2,635 miles) and its valley forms the natural transportation route through the Northwest Territories to the Arctic Ocean.

The rivers flowing west into the Pacific are short and swift, reaching the coast through deep valleys and canyons—power sources of the present and future.

## ***Climate***

The climates of Canada lie mostly within the cool temperate zone, with the exception of the remote north which is in the Arctic zone. Cool temperate zones are characterized by relatively short summers and long winters, by the predominance of polar air masses, by a high frequency of storms and a prevalence of spring and autumn frosts. The southern limit is marked by the average temperature of the coldest month, below 26.6°F.; the northern limit by the mean of the hottest month, over 50°F. Although somewhat severe, these climates are stimulating rather than inhibitive in their effects; they challenge rather than frustrate. They may have prevented men from doing much with the land in earlier times when technology was limited and when there was no pressure on space in warmer and easier climatic zones. But since men have learned how to adjust their housing, clothing, food and transportation and have acquired the kinds of tools and bred the species of plants and animals suited to the environment, they have made great progress and have been stimulated to make greater and more intensive specialized and scientific use of the restricted growing season.

Of course the cool temperate climate may be divided into a number of types, such as the humid type with a warm summer found in southern peninsular Ontario, in the lower Ottawa valley and in the Montreal plains and Eastern Townships of Quebec; the humid type with a cool summer is much more widespread and includes the Avalon Peninsula of Newfoundland, the Maritimes, the edge of the Shield in Quebec and Ontario and the northern fringe of the prairies from Winnipeg to Edmonton; the humid type of climate with a severe winter has the widest range of all, extending from the intermediate slopes of the Coast Mountains of British Columbia to the northern half of Newfoundland—this, however, is not the climate of the most settled zone but of the pioneer zone; the humid type of climate with cool summers and mild winters is found along the Pacific Coast of British Columbia and in the offshore islands. Semi-arid to arid climates occur in the extreme interior of the continent and in the Arctic; the former because of isolation from maritime influences and the latter because of prolonged cold.



Waterton Lakes National Park, in the southwest corner of Alberta, is one of the most colourful and charming of Canada's mountain playgrounds. Its stately peaks, sculptured by ancient glaciers, rise abruptly from the plains, clothed in remarkable purples, greens and golds.

### Temperature and Precipitation Data for Certain Localities in Canada

Station	Length of Record Yrs.	Temperature (deg. Fahrenheit)					Precipitation	
		Avg. Annual	Avg. January	Avg. July	Ex- treme High (1921-50)	Ex- treme Low (1921-50)	Avg. Annual (inches)	No. of Days
Gander, Nfld. ....	14	39.2	19.0	62.1	91	-16	39.50	199
St. John's (Torbay), Nfld. ....	10	40.6	23.9	59.4	86	-10	59.99	208
Charlottetown, P.E.I. ....	30	42.5	18.8	66.6	98	-23	43.13	162
Halifax, N.S. ....	30	44.4	24.4	65.0	94	-21	54.26	156
Sydney, N.S. ....	30	42.8	22.7	65.0	98	-23	50.61	165
Saint John, N.B. ....	30	42.0	19.8	61.8	93	-21	47.69	168
Arvida, Que. ....	19	36.6	4.2	65.2	95	-42	38.77	176
Montreal, Que. ....	30	43.7	15.4	70.4	97	-29	41.80	164
Fort William, Ont. ....	30	36.8	7.6	63.4	91	-38	27.62	142
Toronto, Ont. ....	30	47.0	24.5	70.8	105	-22	30.94	145
Churchill, Man. ....	21	18.8	-16.4	55.0	90	-50	14.41	101
Winnipeg, Man. ....	30	36.6	0.6	68.4	108	-43	19.72	118
Regina, Sask. ....	30	36.7	2.3	66.6	110	-54	15.09	109
Beaverlodge, Alta. ....	30	36.1	9.7	60.2	98	-53	17.32	127
Calgary, Alta. ....	30	39.0	15.8	62.4	97	-46	17.47	101
Nelson, B.C. ....	30	45.8	24.4	67.2	103	-17	28.52	131
Victoria, B.C. ....	30	50.2	39.2	60.0	95	6	26.18	144
Dawson, Y.T. ....	30	23.8	-16.0	59.8	95	-73	13.99	117
Coppermine, N.W.T. ....	19	11.7	-19.0	49.0	87	-58	10.87	103

## National and Provincial Parks

The Governments of Canada—national and provincial—have, with foresight and wisdom, set aside many areas of this magnificent land to be preserved in their natural state for the enjoyment and benefit of the people—some vast and spectacular and some small jewels of picturesque or historic interest. There are scenic and wild animal parks far removed from civilization and completely untouched by the hand of man, but many others are easily accessible by highway, rail or air, offering extensive recreational facilities and every type of accommodation from camp grounds to palatial hotels and cosy cabins. There, away from the bustle of modern life, may be found the peace and solitude that only nature can provide.

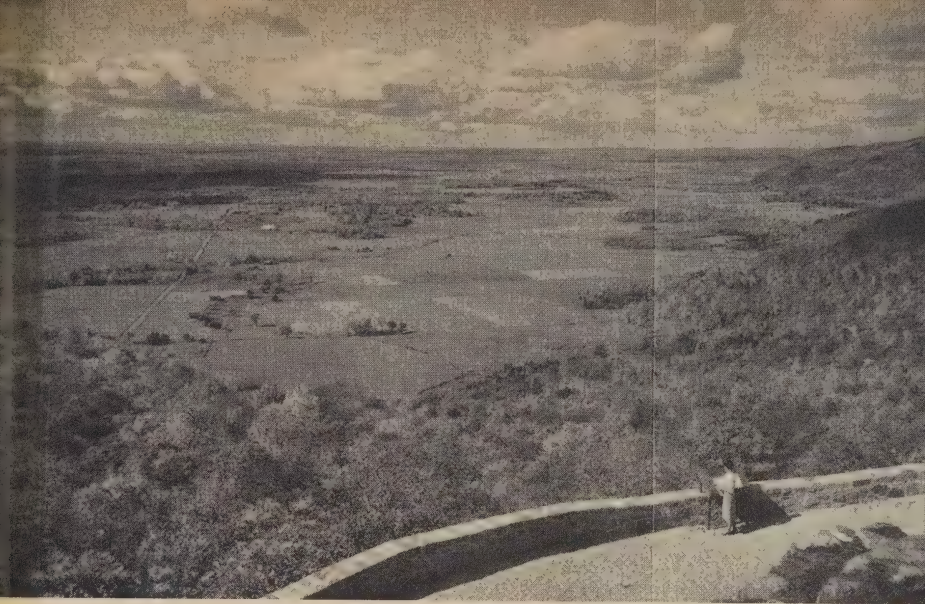
The Federal Government began in 1885 to look toward the future by establishing a small parkland around the hot mineral springs at Banff in the Alberta Rockies. This Park, enlarged to over 2,500 sq. miles, has become one of the best known recreational areas in the world. There are now thirty National Parks established across the country, together having an area of 29,000 sq. miles. They are Canada's greatest single tourist attraction, each with its unique fascination and offering its special facilities for the vacationer. The Parks are supervised by the National Parks Branch of the Department of Northern Affairs and National Resources, and records show that about 3,350,000 people entered their gates in 1956. National Park names and areas are as follows:—

*The Indians who once inhabited Canada's north Pacific Coast left behind them many expressions of their artistry, among them those monumental wood carvings, the totems.*



<i>Park</i>	<i>Area</i>
SCENIC	sq. miles
Jasper, Alta. ....	4,200.0
Banff, Alta. ....	2,564.0
Prince Albert, Sask. ....	1,496.0
Riding Mountain, Man. ....	1,148.0
Kootenay, B.C. ....	543.0
Glacier, B.C. ....	521.0
Yoho, B.C. ....	507.0
Cape Breton Highlands, N.S. ....	390.0
Waterton Lakes, Alta. ....	204.0
Mount Revelstoke, B.C. ....	100.0
Fundy, N.B. ....	79.5
Prince Edward Island, P.E.I. ....	7.0
Point Pelee, Ont. ....	6.0
Georgian Bay Islands, Ont. ....	5.4
St. Lawrence Islands, Ont. ....	189.4 (acres)
WILD ANIMAL	
Wood Buffalo, Alta. and N.W.T. ....	17,300.0
Elk Island, Alta. ....	75.0
HISTORIC	acres
Fortress of Louisburg, N.S. ....	339.5
Fort Lennox, Que. ....	210.0
Fort Beauséjour, N.B. ....	81.3
Fort Prince of Wales, Man. ....	50.0
Halifax Citadel, N.S. ....	37.0
Fort Battleford, Sask. ....	36.7
Fort Anne, N.S. ....	31.0
Port Royal, N.S. ....	20.5
Woodside, Ont. ....	11.0
Lower Fort Garry, Man. ....	12.8
Fort Wellington, Ont. ....	8.5
Fort Malden, Ont. ....	5.0
Fort Chambly, Que. ....	2.5





*The new Fortune Lake Parkway through Gatineau Park emerges from an infinity of leaf and lake to pause on the edge of the escarpment overlooking the Ottawa River, opening a new and enchanting vista of a long-settled land.*

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In addition, more than 500 sites of historic importance have been marked or acquired by the Historic Sites and Monuments Board, commemorating historical events and personalities who have played a distinctive part in the shaping of the nation.

Seven of the provincial governments have established Provincial Parks. Though many of them are undeveloped areas set aside in their natural state, some of the larger parks, especially in British Columbia, Quebec and Ontario, are highly developed and well served with tourist accommodation and organized recreational facilities. The total area of provincial parkland is about 40,626 sq. miles, located as follows: Quebec, 20,264 sq. miles; British Columbia, 12,496 sq. miles; Ontario, 5,079 sq. miles; Saskatchewan, 1,685 sq. miles; Manitoba, 937 sq. miles; Alberta, 117 sq. miles; and Newfoundland, 48 sq. miles. In Manitoba, park developments are being carried out in two of the Province's forest reserves having a combined area of 1,668 sq. miles.

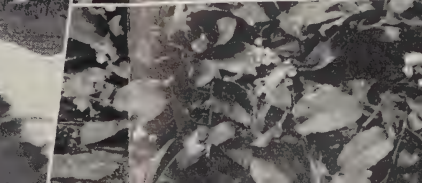
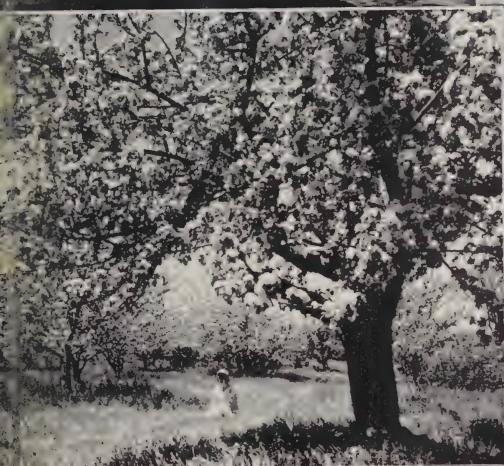
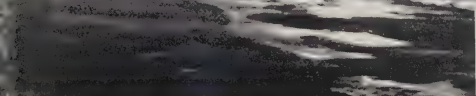
**Gatineau Park.**—Immediately north and west of Ottawa, the Capital City of Canada, lies a beautiful hill and lake country long loved and widely used for recreational purposes by the people of the district. This area has been taken into the National Capital Plan to be preserved in its natural state and developed as a park and game sanctuary. About three-quarters of its planned 75,000 acres have been acquired and are being opened up by a 45-mile scenic parkway. Late in 1956 the beginning of this driveway was ready for use and the park, with its beaches, trails, camp sites, picnic facilities, fishing and boating and excellent winter skiing, is now the summer and winter playground of the Capital area.

"I have seen the still reflections on the  
diamond, sapphire and emerald lakes of Canada.  
I have seen the avalanche of apple blossom in the Annapolis  
valley and the blush of the peach trees of Niagara and of the hills  
and vales of the Okanagan. I have read the illumined manuscript  
of the prairies and looked upon the haggard mountains keeping  
their eternal vigil—sentinel peaks, silent and strong. I have felt  
the salt-laden breeze and basked in the peaceful summer sun on Nova  
Scotia's rocky shores. Yes, I have welcomed the first bright flower  
carpets of spring and marvelled at the glorious  
banners of autumn's gay procession.





My eyes have beheld great skies  
filled with crimson sunsets and all the delicate and  
changing beauties of sun and snow. I have heard the primeval  
forest still murmuring with pines and hemlocks and have looked down  
upon the limitless tundra of the Arctic and the beckoning immensities  
of its promise. And I have seen the little spires of Quebec  
pointing to the heavens in adoration and everywhere the clean,  
happy little dwellings of a home-loving and faithful people. Surely  
no place on earth contains within its ordered space greater or more  
varied wonders of nature—of mountain, lake  
and field, of season and of hue."





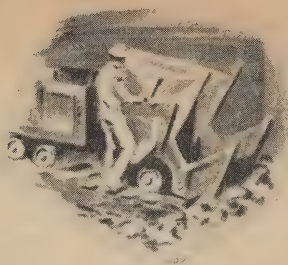


George Hunter

*Quirke Lake is one of the most scenic mining areas in Ontario. Six properties completely encircle the lake under which lies most of the uranium orebody of the area. The two shafts at the Panel property have been sunk on small islands to which causeways have now been built.*

# Resource Development

## Minerals



IN 1957 Canada is host to the Sixth Commonwealth Mining and Metallurgical Congress. From September 8 to October 9, Canada's mineral industry will be on display to delegates from some seventy countries, who will visit almost every type of mineral operation in Canada: precious and base-metal mines, coal mines, smelters and metallurgical plants, industrial mineral operations, and petroleum, natural gas and chemical installations as well as universities and various branches of government administration, research and scientific investigation. All will see a thriving, prosperous mineral industry in a period of great growth. Tremendous changes have taken place in almost every field of mineral endeavour since 1927, the year in which the Congress was last held in Canada. Highlighting these changes are the mushroom-like growth of the crude petroleum industry in Western Canada; the colourful development of what will probably become the world's largest uranium industry; the great growth of iron-ore production; and the remarkable expansion of Canada's nickel and copper producing facilities. The most recent developments in the various branches of the Canadian mineral industry are covered in the article below.

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Canada, with its great wealth of mineral resources, possesses a thriving mineral industry. During the past five years in particular, widespread exploration and extensive development activity fed by huge capital expenditures have greatly broadened Canada's mineral horizons. So rapid has been the growth of the mineral industry that each successive year sees the setting of new records in both volume and value of production. Output, which comprises over sixty metals and minerals, was almost \$2,100,000,000 in value in 1956 (double that of 1950) and accounted for about 7 p.c. of the value of the gross national product that year. Crude petroleum, with an output valued at \$401,800,000 in 1956, is the leading mineral in point of value and copper is the leading metal.

The mineral industry continues to play an increasingly important role in Canada's export trade. In 1956 exports of primary ores, metals and minerals reached a value of \$1,300,000,000 and made up nearly 30 p.c. of the country's exports of all commodities. Canada today is the chief world producer of nickel, the platinum metals and asbestos. It ranks second in the production of gold, zinc, cadmium and selenium; third in silver, molybdenum and barite, and fourth in copper and lead. Much of Canada's mineral production is exported in the form of ores and concentrates or in primary metallic forms mainly to the United States. However, with the rapid growth

in Canadian industrialization, increasingly large quantities of the basic raw materials from the mines and mills are being processed and consumed domestically.

Several developments of marked significance to Canada's economy are taking place. Among these the high rate of discovery of crude petroleum and, more latterly, of natural gas is effecting great material changes in the country's industrial development as well as adding markedly to the value of Canadian mineral production. The growth of uranium mining, particularly in the Blind River area of northern Ontario, has already placed Canada in the forefront of uranium producers and promises by 1958 to add \$300,000,000 to the annual value of Canadian mineral output. Almost overnight this country has become a major exporter of iron ore and developments in the non-ferrous base metal field, particularly in nickel and copper, are making large new supplies of these metals available for export.

More than any other industry, mining continues to open up Canada's great expanses to settlement and to other industry. The construction a few years ago of the 360-mile Quebec North Shore and Labrador Railway into the New Quebec-Labrador iron ore field has made large areas of Quebec's hinterland accessible for exploration and development. Similarly, the recently built 144-mile railway from Sherridon to Lynn Lake in northern Manitoba has opened up a large section of the Province to the explorer and the developer. Two new rail lines and a highway have been built into the Manitouwadge copper-zinc area of northwestern Ontario, and a railway is pushing into Quebec's Chibougamau area from Beattyville on the west and from St. Felicien on the south. As a result of mineral developments new settlements such as Schefferville in New Quebec-Labrador, Lynn Lake in northern Manitoba, Uranium City in the Beaverlodge area of northern Saskatchewan, and Murdochville in Quebec's Gaspé peninsula have appeared on the mineral scene and have been inscribed on the map of Canada.

**Metals.**—Metal production continued its upward trend in 1956 reaching a value of \$1,134,400,000, 13 p.c. above the 1955 total and constituting 55 p.c. of the total value of mineral production. Good prices and a firm demand for metals maintained development activity at a high level with a resultant marked increase in actual and potential output. This was particularly true of iron ore, uranium, copper, nickel and zinc.

Iron ore headed the list of actual production gains made. Output in 1956 rose to 22,500,000 short tons, a 38-p.c. increase over 1955 and three times the output in 1954. Developments under way indicate a total iron-ore output of between 50,400,000 and 67,200,000 tons within the next decade. In the Steep Rock area of northwestern Ontario, for instance, Steep Rock Iron Mines Limited and Caland Ore Company Limited plan to spend \$60,000,000 during the next few years to raise output to 10,080,000 tons annually. More than 13,440,000 tons of the 1956 output came from Iron Ore Company in New Quebec-Labrador (8,648,640 tons in 1955); 3,732,000 tons from Steep Rock Iron Mines in the Steep Rock area; 1,585,000 tons from Algoma Ore Properties Limited in northern Ontario; and 3,121,000 tons from Dominion Wabana Ore Limited in Newfoundland. The remainder came mainly from the operations of Marmoraton Mining Company Limited about 35 miles east of Peterborough in southeastern Ontario, and from operations in British Columbia.



Additional iron ore output is coming from the treatment of pyrite and pyrrhotite by Noranda Mines Limited in two sulphur-iron plants in Ontario—one at Port Robinson near Welland and the other at Cutler in the Blind River area—and by International Nickel Company in a new \$19,000,000 ammonia-leaching plant at Copper Cliff near Sudbury. Eventual annual production from this plant will be at the rate of 1,000,000 tons of iron ore grading more than 65 p.c. Increased attention is being paid to properties containing low-to-medium-grade iron ores which are amenable to beneficiation. One such property is the Hilton mine (formerly the Bristol mine) about 35 miles northwest of Hull, Que., which is being prepared for an annual production of 600,000 tons of pellets containing about 66 p.c. iron. The higher content furnace feed thus obtained enables industry to increase blast furnace production by as much as 20 p.c. without expanding capacity.

About 90 p.c. of Canada's output of iron ore is now exported. Canadian consumption has increased fivefold since 1938 and in 1956 totalled 6,720,000 tons. Despite increasing output, about 72 p.c. of the consumption in 1956 was imported, mainly because of geographic factors and company affiliations.

Uranium has become, in the short space of three years, one of Canada's major metals. Canada, which early in 1953 had one producing area at Great Bear Lake in the Northwest Territories, now has four such areas, the three additional ones being the Beaverlodge area of northern Saskatchewan, the Blind River area of northern Ontario and the Bancroft area of southeastern Ontario. It also has two potential uranium areas, the Marian River area of Northwest Territories and the Birch Island area in the Kamloops Mining Division of British Columbia. By late 1956, Eldorado Mining and Refining Limited, the Crown purchasing agent, had signed contracts and given letters of intent to 18 uranium companies covering the purchase of over \$1,500,000,000

*The Wabana iron mines of Bell Island, Newfoundland, have recently completed an extensive modernization program increasing their annual output capacity to 2,800,000 tons of ore. For the next five years about 80 p.c. of this output will go to the United Kingdom and West Germany.*



worth of uranium precipitates by Mar. 31, 1963. Output by 1958 is expected to come from 24 uranium concentration plants which will handle over 44,000 tons of ore daily. Eleven of these with an estimated throughput of 33,250 tons daily will be in the Blind River area.

Undoubtedly the most colourful events in the uranium industry have taken place in the Blind River area. Since the discovery of uranium in 1953, huge tonnages of low-grade uranium ore have been proven; Pronto Uranium Mines Limited, the area's first producer, entered production in 1955 after an incredibly short period of preproduction development; Algom Uranium Mines Limited officially entered production early in 1957 and is milling at a total rate of 6,000 tons daily in two plants; and several other companies are nearing production, one of these being Consolidated Denison Mines Limited which expects to place its 6,000-ton mill in operation in the spring of 1957. This will be the largest single uranium plant in the world. All told, over \$200,000,000 will be spent to bring the various properties in the Blind River area into production.

Production in the Beaverlodge area comes from Eldorado's property on Beaverlodge Lake, including that of nearby Radiore Uranium Mines Limited which Eldorado has leased on a royalty basis; from the operations of Gunnar Mines Limited in the St. Mary's Channel section; and from several smaller operations. Eldorado has enlarged its mill from 750 tons to 2,000 tons daily and Gunnar from 1,250 tons to 1,650 tons daily. Lorado Uranium Mines Limited is completing the construction of a 500-ton mill, which is later to be expanded to 750 tons daily.

In the Bancroft area, Bicroft Uranium Mines Limited has a 1,000-ton plant in operation and four other companies in the area expect to enter production in 1957. Additional uranium production will also come in 1957 from the property of Rayrock Mines Limited in the Marian River area of Northwest Territories, and from that of Rexspar Uranium and Metals Mining Company Limited near Birch Island in southern British Columbia.

Nickel production is at record levels as a result of the expansion in production facilities in the Sudbury area and the addition of new production from northern Manitoba. During the past decade, International Nickel raised its annual production from around 220,000,000 lb. to over 290,000,000 lb. through the large-scale extension of its underground mining facilities and the use of new metallurgical processes for the treatment of lower-grade ores. Falconbridge Nickel Mines Limited is carrying out an expansion program to raise its production to 55,000,000 lb. by 1960; by 1956 output had reached some 45,000,000 lb. Nickel production from the Lynn Lake nickel-copper property of Sherritt Gordon Mines Limited in northern Manitoba is running at a rate of 20,000,000 lb. a year. Nickel concentrate from the Lynn Lake mine is processed in Fort Saskatchewan, Alta.

The shortage of nickel and the resultant emphasis on the search for new sources of supply have led to a number of developments which promise to increase further Canada's output of the metal. International Nickel is going ahead with the development of its extensive, low-grade deposits at Mystery Lake and Moak Lake in northern Manitoba. In the Kenora area of north-western Ontario, Kenbridge Nickel Mines Limited, a Falconbridge subsidiary, and Eastern Mining and Smelting Corporation Limited are preparing



man's eternal  
quest for fabulous  
fortune has been  
added a new ad-  
venture and a new  
game—URANIUM  
—a magic metal  
with the potential  
power to change  
the standard of  
living the world  
over. Canada's  
own resources  
of this exciting  
source of energy  
are being extended  
readily and its  
mining rate should  
reach 44,000  
tons a year by  
mid-1958.



At this sprawling mill at Gunnar Mines  
in the Beaverlodge area of northern  
Saskatchewan, uranium ore is crushed,  
ground, boiled and purified until only  
the bright yellow concentrate remains.

Years ago a 30-mile stretch of  
road, now an excellent secondary  
highway, was cut through virgin forest  
in northern Ontario and over it passed  
the heavy equipment to develop  
the Elliot Lake mines and townsite  
and the Quirke Lake mines. The Con-  
solidated Denison 6,000-ton mill  
under construction was completed  
early in 1957 and is the largest single  
uranium plant in the world.





properties for production in the Populus Lake and Werner Lake areas, respectively. Production from the latter property plus that from the Montmagny county property of Eastern Metals Corporation Limited on the south shore of the St. Lawrence River and from North Rankin Nickel Mines Limited on the west coast of Hudson Bay in Northwest Territories will be used as feed for the new nickel-copper smelter-refinery at Chicoutimi, Que., which Eastern Mining has scheduled for completion in 1957-58. Initial output from the new plant is planned at 12,500,000 lb. of nickel and 100,000,000 lb. of blister copper annually.

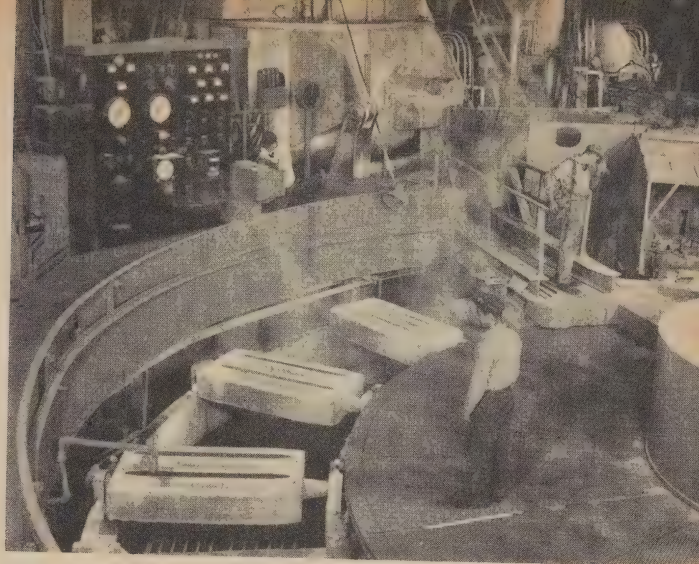
Copper production rose to an all-time high of over 706,000,000 lb. in 1956 mainly because of the expansion in nickel-producing facilities in the Sudbury area and of new output from Quebec's Gaspé and Chibougamau areas. When in full production, the new mine of Gaspé Copper Mines Limited is expected to produce 125 tons of copper anodes daily. The up-and-coming Chibougamau area, from which production first came late in 1953, already has three mines in operation with a combined annual output of over 50,000,000 lb. of copper, and several other properties nearing production.



Four hundred air miles north of Winnipeg in the Mystery-Moak Lakes area lies a nickel deposit which, after three or four years of development at the expenditure of \$17,000,000, will probably become the second largest nickel producer in the world—next to the Sudbury operations in Ontario.



Wire bar casting from an electric furnace at International Nickel's copper refinery at Copper Cliff, Ont. Canadian industry used 300,000,000 lb. of refined copper in 1956.



New copper production will come in 1957 from the Manitouwadge area of northwestern Ontario where important copper-zinc discoveries were made in 1953. Geco Mines Limited plans a milling rate of 3,300 tons daily at the site of the original discovery and Willroy Mines Limited is completing a 1,000-ton mill on an adjoining property. In northwestern British Columbia, Granduc Mines Limited is preparing a copper property for production by 1960-61 at an eventual contemplated rate of 10,000 tons of ore daily. In Eastern Canada, Maritimes Mining Corporation Limited is planning production at two properties in Newfoundland, the old Tilt Cove mine on the northwest shore of Notre Dame Bay and the Gullbridge property 50 miles to the southwest.

The output of refined copper comes from two refineries, the International Nickel Refinery at Copper Cliff in the Sudbury area, and that of Canadian Copper Refiners Limited, a subsidiary of Noranda Mines Limited, in Montreal East. Canadian consumption of refined copper totalled 300,000,000 lb. in 1956, a 9-p.c. increase over 1955 and a 153-p.c. increase over 1938.

Canada's zinc production amounted to 847,200,000 lb. in 1956, 2 p.c. lower than in 1955. Output from the Sullivan mine of Consolidated Mining and Smelting and from other zinc operations in British Columbia, Quebec and other producing provinces is for the most part at capacity rates. Canada's two zinc refineries—that of Consolidated Mining and Smelting at Trail, B.C., and of Hudson Bay Mining and Smelting Company Limited at Flin Flon, Man.—produced 511,200,000 lb. of refined zinc in 1956 compared with 514,000,000 lb. in 1955. Zinc concentrates from provinces east of Manitoba are exported to the United States or Europe. Zinc consumption in Canada has increased 154 p.c. since 1939, far outstripping that of the United States and of the world which increased 71 p.c. and 53 p.c., respectively.

Lead production has shown a gradual decline during the past few years because of a slackening in demand in outside markets. Output in 1956 amounted to 373,300,000 lb. compared with 405,500,000 lb. in 1955. Over 80 p.c. of the production comes from the Sullivan mine and from other operations in British Columbia. Several promising lead-zinc properties are

under development, particularly in the Bathurst-Newcastle area of north-eastern New Brunswick where Brunswick Mining and Smelting Corporation Limited and other companies are working toward production. Canadian consumption of lead, which has increased 144 p.c. since 1939, should show a further marked increase with the construction in 1956 of a plant to produce tetraethyl compounds in the Sarnia area of southwestern Ontario.

The gold industry continues to be faced with difficult economic problems arising from a fixed price for gold and high production costs and, more recently, the high premium on the Canadian dollar. Output in 1956 amounted to 4,400,000 oz. t. compared with 4,500,000 oz. t. in 1955, and 5,345,000 oz. t. in the record year of 1941.

**Industrial Minerals.**—In line with Canada's rapid industrial growth, marked progress has been made in the production of industrial minerals. Canadian consumption of these minerals since 1938 has increased more rapidly than that of metals. Canada, for instance, now uses five times the cement, seven times the gypsum, and three times the lime and the salt.

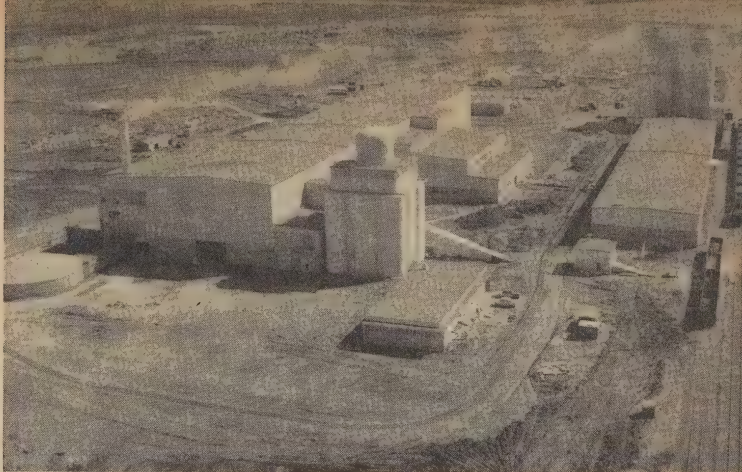
Asbestos is the top mineral of the group in point of value, output in 1956 being 1,000,000 tons valued at \$109,700,000. Demand for asbestos suitable for asbestos-cement products increased 5 p.c. in 1956 over 1955 while sales of the spinning fibres dropped 15 p.c. below the record set in 1955. Canadian requirements of asbestos are relatively small and most of the output is exported. By 1958 over \$100,000,000 will have been spent on the expansion of Canada's asbestos-producing facilities since 1950. In the Eastern Townships of Quebec, the source of approximately 96 p.c. of the Canadian output, Canadian Johns-Manville Company Limited has completed at Asbestos the world's largest mill, capable of producing 625,000 tons of fibre annually. A large project under way is the preparation of the Black Lake property of Lake Asbestos of Quebec Limited, a subsidiary of American Smelting and Refining Company, for production at a cost of \$35,000,000. The Company expects to start operations during 1958 at a rate of 4,000 tons daily. In Western Canada, Cassiar Asbestos Corporation Limited, which produces long-fibre asbestos from a deposit in the McDame Lake area of northern British Columbia, has increased its milling rate to 700 tons daily.

Because of the tremendous rate of construction activity, cement production is at capacity levels. Output in 1956 amounted to 29,700,000 bbl. 18 p.c. over 1955 and 78 p.c. over 1950. Production capacity has been raised to 37,000,000 bbl. annually and present expansion under way is expected to raise it to 42,000,000 bbl. by 1957 or early 1958. About 3,500,000 bbl. were imported into Canada in 1956 to meet domestic demand but it is hoped that the additional capacity will eliminate the necessity of imports. One of the larger of the new projects is the 3,000,000-bbl. plant built at Clarkson, Ont., by St. Lawrence Cement Company Limited. It came into production late in 1956.

The gypsum industry recorded another all-time high in 1956 with an output of over 5,000,000 tons compared with 4,668,000 tons in 1955. Nova Scotia accounts for about 85 p.c. of the output and much of the increase in 1956 came from the new quarry of National Gypsum (Canada) Limited at Milford in that Province, where production was as high as 8,000 tons a day on a single shift basis. From this deposit, one of the largest in the world crude gypsum is shipped to company plants along the Atlantic seaboard.



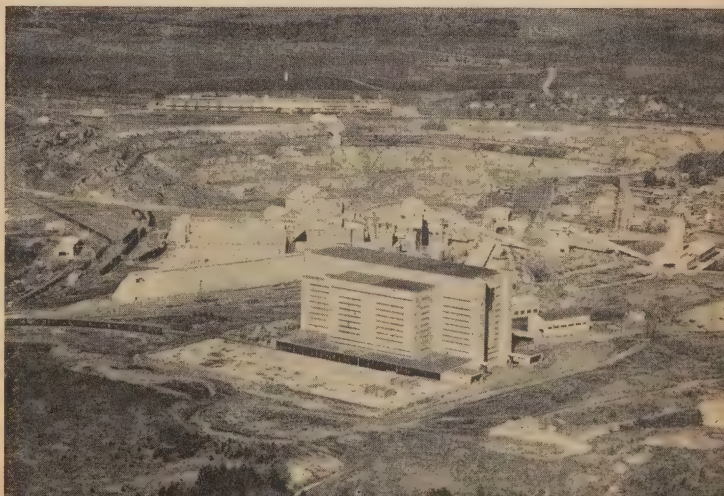
Raised in less than a year, this new cement plant at Edmonton started business in May 1956, delivering cement to contractors in Western Canada. East and west, in almost every province, the cement industry is adding to its facilities in an endeavour to fill construction demands.



Canada's output of rock salt has increased greatly with the bringing in of the new mine of The Canadian Rock Salt Company Limited at Ojibway near Windsor in Ontario in August 1955. Production from this mine, which is equipped to produce 500 tons of salt an hour from the 27-foot seam 1,000 feet below the surface, has made Canada a large exporter of rock salt. Exports, which go to the United States, totalled 200,000 tons valued at \$1,000,000 in 1956 compared with 949 tons valued at \$14,445 in 1954, the year before the mine's entry into production. Rock salt output also comes from Malagash Salt Company Limited at Malagash, N.S., which is preparing a new mine at nearby Pugwash for production in 1957 at 1,000 tons a shift. In Ontario, Dominion Tar and Chemical Company Limited through its subsidiary, Sifto Salt Limited, will spend \$6,000,000 to develop a 20-foot bed of salt 99 p.c. pure near Goderich.

Production of elemental sulphur from sour natural gas will rise rapidly during the next few years after the two major natural gas pipelines now under construction go into operation, as the gas must be cleaned of hydrogen sulphide and other impurities before it is used. Canadian Gulf Oil Company in 1956 constructed a plant near Pincher Creek, Alta., which will have an

the Eastern Townships of Quebec continue to account for most of the asbestos output of Canada. This recently completed mill at Asbestos, which replaced smaller outmoded facilities, can produce 625,000 tons of fibre annually.



ultimate recovery of 896 tons of sulphur a day from gas for delivery to Trans-Canada Pipe Lines Limited. In the Peace River area of British Columbia, Pacific Petroleum Limited will recover sulphur from gas for delivery to the pipeline of Westcoast Transmission Company Limited in a \$20,000,000 plant near Fort St. John at an initial rate of 300 tons daily. Canada's production of elemental sulphur from sour natural gas in 1956 amounted to 29,120 tons. It is being recovered in Alberta by Shell Oil Company of Canada Limited in the Jumping Pound field at a rate of 90 tons daily, and by Royalite Oil Company in the Turner Valley field at a rate of 11,200 tons a year.

Important developments have been taking place in the production of other industrial minerals. Canada's output of titanium dioxide has shown an increase during the past few years because of the extensive modification of electric smelting furnaces and the construction of new ore treatment facilities by Quebec Iron and Titanium Corporation at its plant at Sorel, Que. Output of titanium dioxide in 1956 amounted to 153,000 tons compared with 117,000 tons in 1955. Developments under way at lithium properties in the Lake Nipigon-Beardmore area of northwestern Ontario and in the Cat Lake-Winnipeg River area of southeastern Manitoba indicate a substantial increase in Canada's output of lithium concentrates in the next few years. Quebec Lithium Corporation, Canada's first major producer of lithium concentrate, is raising the capacity of its plant near Val d'Or from 1,000 to 1,500 tons a day. Several niobium (columbium) properties are under investigation in various parts of Canada, including a niobium-uranium property on Newman Island in Lake Nipissing in northern Ontario, and a niobium deposit near Oka, 40 miles northwest of Montreal in Quebec.

Canada's second source of nepheline syenite production was opened up in 1956 with the bringing in by International Minerals and Chemical Corporation (Canada) Limited of its property 40 miles northeast of Peterborough in Ontario. The original producer, American Nepheline Limited in the same area, expanded its plant in 1956 to handle 600 tons a day.

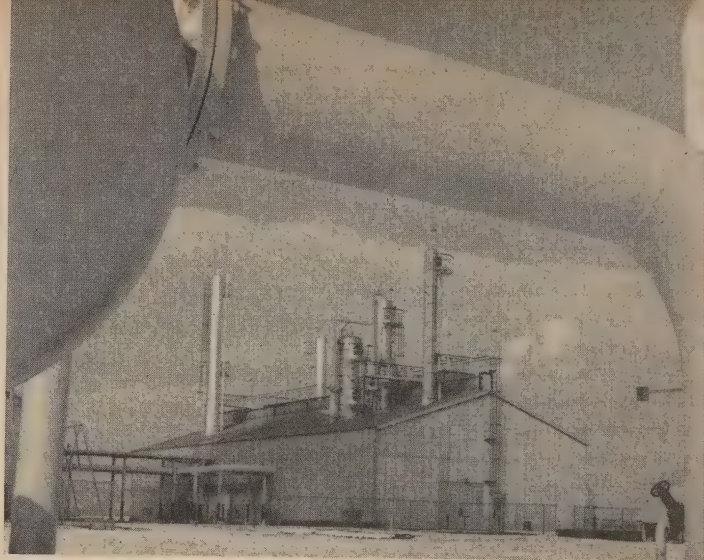
Canada will have a new source of feldspar early in 1957 when Quebec Lithium Corporation commences the commercial production of feldspar as a by-product in the production of lithium concentrate at its plant near Val d'Or. The Company plans an initial production of 250 tons of ceramic-grade feldspar concentrate daily. Present production, which amounted to 17,800 tons in 1956, comes from deposits in Quebec within 100 miles of Ottawa.

Several companies are drilling potash deposits in Saskatchewan. One of these, Potash Company of America Limited, is working toward production by 1958 at its property 15 miles east of Saskatoon. Saskatchewan's potash deposits extend right across the Province from Churchbridge at the Manitoba boundary to Manito Lake near the Alberta border and are believed to contain the largest reserves of potash in the world.

The clay products industry continues to expand rapidly in line with the high level of construction activity. The largest of the new plants to come into production in 1956 was that of Canada Brick Limited at Streetsville, Ont., with an output of 100,000 shale bricks daily. The production of lightweight aggregate from Canadian clays and shales also shows a steady increase. New plants being built will add to the production of the eight now in operation.



Gas conservation plant at Leduc, Alta., which takes some 25,000,000 cu. feet of gas a day from oil wells at Leduc and Golden Spike, separates out the liquid propane, butane and pentanes, then passes some of the dry residue on to a utility company for use in homes and factories in the Edmonton area. The remainder is returned to the oil wells to provide pressure which results in greater oil recovery.



**Fuels.**—Canada's crude petroleum industry continues to record outstanding progress in growth of production and the steady expansion of supply facilities. Output in 1956, 85 p.c. of which came from Alberta, advanced 32 p.c. over that of 1955 to reach 170,600,000 bbl. Potential production, however, is now almost double allowable production mainly as a result of the remarkable success of the extensive drilling under way in the Pembina field of Alberta and in the oil-rich areas of southeastern Saskatchewan. Alberta in 1956 showed the greatest increase in volume of output, advancing 31,300,000 bbl. to 144,300,000 bbl. Saskatchewan, however, recorded the greatest proportionate increase with an output of 19,200,000 bbl., almost double that of 1955. Production in Manitoba increased 43 p.c. to 5,900,000 bbl.

The domestic market, which regularly shows an annual increase of about 12 p.c., absorbed approximately 75 p.c. of the 1956 output and the export market the remainder. New outlets for western Canadian crude are being supplied by the construction in 1957 of a 20-inch, 150-mile extension to the Interprovincial pipeline from Sarnia to Toronto and by the additions in 1957-58 to refinery capacity in the Toronto area. These are expected to raise Ontario's present market for Canadian crude about 60 p.c. to 200,000 bbl. a day by 1958.

Over \$500,000,000 was spent on exploration and development of crude petroleum and natural gas resources in 1956 and the industry is expected to increase this to some \$600,000,000 in 1957. Crude petroleum reserves in Western Canada have risen to over 3,000,000,000 bbl., three-quarters of which are in Alberta. The marked upsurge in drilling activity in 1956 has carried over into 1957 and remains centred in the Pembina field and in southeastern Saskatchewan. At the end of 1956, the Pembina field, now Canada's greatest producing field and one of the largest in North America, had 1,600 producing wells and reserves estimated at 1,000,000,000 bbl. In southeastern Saskatchewan, drilling activity has met with spectacular success and in 1956 alone, 500 development wells were completed, bringing the region's total to 800 wells at the end of the year. Proven reserves in this region are estimated at 1,000,000,000 bbl.

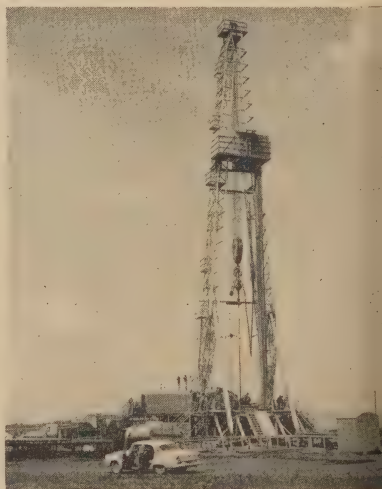


Canada's refinery capacity was raised in 1956 to 700,000 bbl. a day, and construction under way at the end of the year was expected to raise it further to 750,000 bbl. a day. Close to 225,000,000 bbl. of refined products were manufactured by Canadian refineries in 1956 compared with 195,000,000 bbl. in 1955 and refinery consumption is expected to reach 250,000,000 bbl. in 1957.

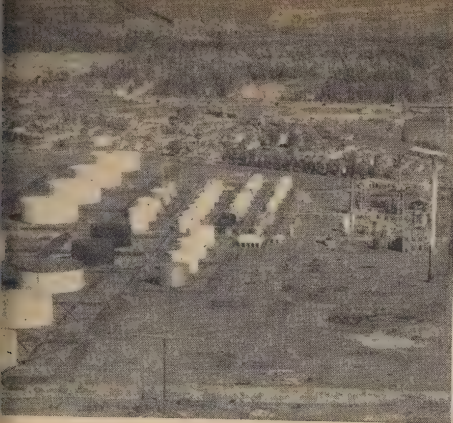
The most significant development in natural gas has been the opening up of eastern and western Canadian markets to western Canadian natural gas that will result from the construction of two major natural gas pipelines now under way—the 650-mile line of Westcoast Transmission Company Limited which will pipe gas from the Peace River area of Alberta and British Columbia south to Vancouver and to the international border, and the 2,300-mile line of Trans-Canada Pipe Lines Limited from the Alberta-Saskatchewan border east to Toronto and Montreal. Details of these pipelines are given at p. 217.

A large-scale exploratory drilling program is in progress in the Fort St. John area of British Columbia to prove up additional natural gas reserves for the Westcoast line. The construction of the Trans-Canada line has had little effect on the exploration for natural gas in Alberta as sufficient gas is available for the first few years of the line's operation. According to the Canadian Petroleum Association, the proven and probable recoverable reserves of natural gas in Western Canada total 22.5 trillion cu. feet, of which 18.5 trillion cu. feet are in Alberta. Additional gas reserves are being found in Alberta at an estimated rate of 2 trillion cu. feet annually.

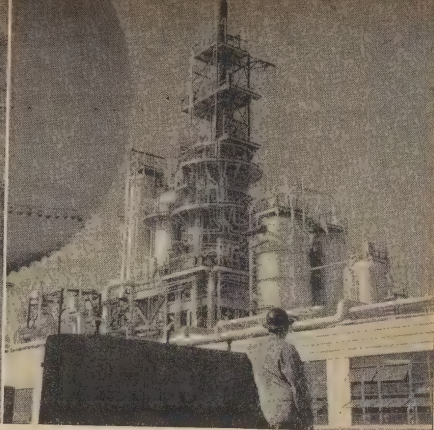
Coal production declined steadily from the record output of 19,139,000 tons in 1950 to 14,914,000 tons in 1954 in the face of increasing competition for markets from crude petroleum and natural gas. Since 1954 output has levelled out and in 1956 amounted to 14,900,000 tons. The Federal Government is carrying out extensive research dealing with various technical problems encountered by the coal industry. This research is directed to the study of stress phenomena to make mining at depth safe and economical; the improvement in preparation techniques; and the development of uses for the finer sizes of Western Canada bituminous coals that are particularly friable. It includes tests of western Canadian coals to aid in the selective mining of seams for the production of high-quality coal for coke manufacture for the steel industry and also the study of problems relating to combustion and power. Additional research is being directed to the hydrogenation of coal, both in the presence and absence of gamma radiation, to make diesel oil and gasoline.



*A large oil drilling rig in operation in eastern Saskatchewan where drilling meeting with spectacular success.*



refinery at Calgary, part of the Alberta scene.



An Edmonton catalytic cracking unit which converts heavy crude to gasoline and other compounds.

## Statistics of Production

In value of production, the greatest advance in 1956 was made by the metals group although the proportion of the total output accounted for by this group dropped from 56 to 55 p.c. during the year. Copper continued to lead the metals followed by nickel, and iron ore advanced to replace gold in third place. Because of the tremendous increase in crude petroleum production, the fuels group showed a dollar advance almost as great as that of the metals group. The value of most non-metallics increased moderately and greater production of cement brought the structural materials to a new high.



"Spinning in" a new length of pipe.



nic crew maps underground rock formations  
asuring electronically the time it takes shock  
produced by dynamite to rebound to the

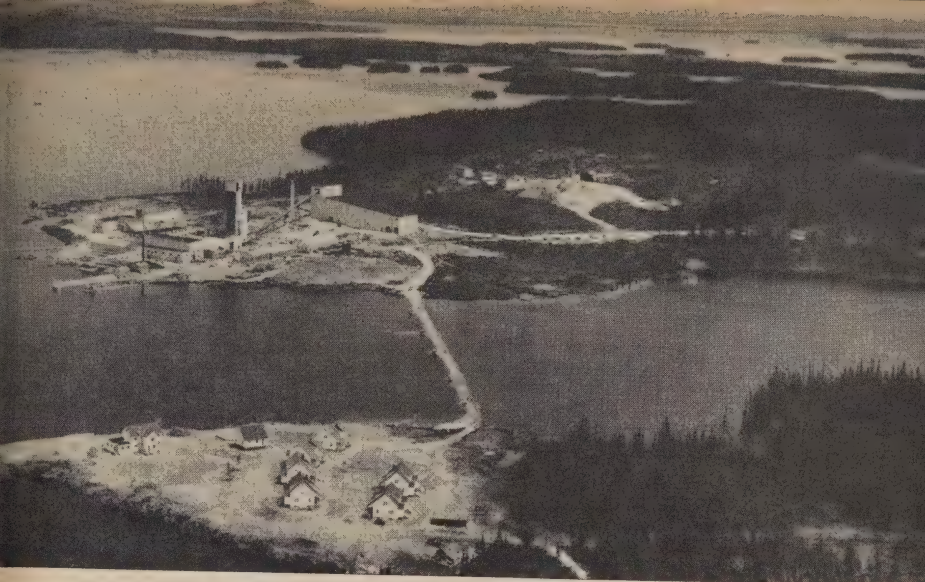


Underground gravity meter is used to measure the pull of gravity at various spots on the bottom of Lake Erie in search for oil and gas.

# Quantities and Values of Minerals Produced, 1955 and 1956

Mineral		1955		1956	
		Quantity	Value	Quantity	Value
			\$		\$
Antimony.....	lb.	2,021,726	563,345	1,820,000	576,300
Bismuth.....	"	265,896	572,362	273,007	494,157
Cadmium.....	"	1,919,081	3,262,439	2,258,184	3,838,913
Cerium, rare earths.....	"	—	988	—	—
Cobalt.....	"	3,318,637	8,563,700	3,685,956	9,372,760
Columbium.....	"	42	1,032	—	—
Copper.....	"	651,987,423	239,756,455	706,585,547	291,469,615
Gold.....	oz. t.	4,541,962	156,788,528	4,378,862	150,808,010
Indium.....	"	104,774	232,598	358,000	805,500
Iron ore.....	ton	16,283,177	110,435,850	22,526,311	156,327,885
Iron ingots.....	"	115,955	4,831,845	157,000	6,339,000
Lead.....	lb.	405,525,038	58,314,500	373,349,541	57,906,514
Magnesium and calcium.....	"	—	6,585,409	—	5,617,826
Manganese ore.....	ton	—	—	—	1,900
Mercury.....	lb.	75	250	—	—
Molybdenite.....	"	1,389,177	823,954	1,452,028	967,461
Nickel.....	"	349,856,997	215,866,007	355,986,460	223,343,992
Palladium, iridium, etc.....	oz. t.	214,252	8,321,633	161,600	6,495,065
Platinum.....	"	170,494	14,747,732	150,000	15,585,000
Selenium.....	lb.	427,109	3,203,319	508,000	6,858,000
Silver.....	oz. t.	27,984,204	24,676,472	28,794,573	25,831,612
Tantalum.....	lb.	390	9,760	—	—
Tellurium.....	"	9,014	15,774	24,000	42,000
Thallium.....	"	275	378	—	—
Tin.....	"	492,781	408,030	611,000	521,550
Titanium ore.....	ton	1,464	10,634	4,443	37,100
Tungsten.....	lb.	1,942,770	5,508,437	2,206,662	6,060,992
Uranium.....	"	—	26,031,604	—	39,577,000
Zinc.....	lb.	866,714,038	118,306,466	847,239,825	125,476,218
<b>TOTALS, METALLICS.....</b>		—	1,007,839,501	—	1,134,354,370
Arsenious oxide.....	lb.	1,571,787	69,159	2,624,757	86,617
Asbestos.....	ton	1,063,802	96,191,317	1,038,975	109,665,924
Barite.....	"	253,736	2,277,166	307,808	2,509,199
Diatomite.....	"	16	352	—	—
Feldspar.....	"	18,152	355,879	17,763	365,370
Fluorspar.....	"	128,114	2,708,437	151,738	3,835,565
Grindstones.....	"	10	1,500	—	—
Gypsum.....	"	4,667,901	8,037,153	5,192,805	8,300,585
Iron oxides.....	"	7,702	162,512	7,757	170,135
Lithia.....	lb.	114,376	61,752	4,800,000	2,640,000
Magnesitic-dolomite and brucite.....	"	—	2,151,820	—	2,412,000
Mica.....	lb.	1,640,708	77,541	1,184,542	73,622
Mineral waters.....	gal.	306,683	160,510	303,500	157,000
Nepheline syenite.....	ton	146,068	2,099,512	179,381	2,489,633
Peat moss.....	"	117,579	3,485,287	125,074	3,708,191
Quartz.....	"	1,869,913	2,039,575	2,114,415	2,781,236
Salt.....	"	1,244,761	10,122,299	1,593,131	13,916,532
Silica brick.....	M	4,763	602,625	5,576	705,077
Soapstone and talc.....	ton	27,160	338,967	29,030	358,750
Sodium sulphate.....	"	178,888	2,799,715	179,438	2,854,223
Sulphur (pyrite and smelter).....	"	628,443	5,984,953	763,736	7,440,410
Titanium dioxide.....	"	117,042	5,192,810	152,500	6,771,000
<b>TOTALS, NON-METALLICS.....</b>		—	144,920,841	—	171,241,069
Coal.....	ton	14,818,880	93,579,471	14,915,033	95,466,866
Natural gas.....	M cu. ft.	150,772,312	15,098,508	173,260,500	17,542,555
Petroleum, crude.....	bbl.	129,440,247	305,640,036	170,569,200	401,840,650
<b>TOTALS, FUELS.....</b>		—	414,318,015	—	514,850,071
Clay products (brick, tile, etc.).....	—	—	35,259,770	—	38,062,112
Cement.....	bbl.	25,168,464	65,650,025	29,719,377	77,876,046
Lime.....	ton	1,331,118	15,810,904	1,303,889	15,328,917
Sand and gravel.....	"	127,524,474	67,775,053	128,995,782	72,637,049
Stone.....	"	30,512,920	43,736,687	31,549,706	43,349,462
<b>TOTALS, STRUCTURAL MATERIALS.....</b>		—	228,232,439	—	247,253,586
<b>Grand Totals.....</b>		—	1,795,310,796	—	2,067,699,096





Most of the Province of Quebec is underlain by rocks favourable for mineral deposition. Particularly active is the Chibougamau district about 300 miles northwest of Lake St. John, now provided with power and being opened up by rail. Campbell Chibougamau, the largest mine in the area, came into production in May 1955 and in 1956 produced concentrates containing 15,300 tons of copper.

Mining is now in the forefront of the primary industries in each province with the exception of Prince Edward Island which is mainly agricultural. And even in the Far North, large-scale aerial geological reconnaissance by the Geological Survey of Canada and exploratory activity by industry are confirming the rich mineral potential of the Yukon and Northwest Territories. The provincial distribution of mineral production in 1927 (the year of the previous meeting of the Commonwealth Mining and Metallurgical Congress in Canada) in 1955 and 1956 was as follows.

### Mineral Production, by Province, 1927, 1955 and 1956

Province or Territory	1927		1955		1956 <sup>p</sup>	
	Value	P.C. of Total	Value	P.C. of Total	Value	P.C. of Total
	\$		\$		\$	
Newfoundland.....	1	1	68,462,956	3.8	87,752,025	4.2
Nova Scotia.....	30,111,221 <sup>2</sup>	12.2 <sup>2</sup>	67,133,539	3.7	66,625,229	3.2
New Brunswick.....	2,148,535	0.9	15,759,744	0.9	18,171,654	0.9
Quebec.....	28,870,403	11.7	357,010,045	19.9	426,608,242	20.6
Ontario.....	89,982,962	36.4	583,954,682	32.5	640,915,058	31.0
Manitoba.....	2,888,912	1.1	62,018,231	3.5	66,711,747	3.2
Saskatchewan.....	1,455,225	0.6	85,150,128	4.7	114,103,316	5.5
Alberta.....	29,309,223	11.8	325,974,326	18.2	408,865,422	19.8
British Columbia.....	60,801,170	24.6	189,524,574	10.6	199,318,374	9.7
Northwest Territories	—	—	25,597,821	1.4	22,949,122	1.1
Yukon Territory.....	1,789,044	0.7	14,724,750	0.8	15,678,907	0.8
Totals.....	247,356,695	100.0	1,795,310,796	100.0	2,067,699,096	100.0

<sup>1</sup> Not part of Canada in 1927.  
Island.

<sup>2</sup> Includes a small production from Prince Edward



*Rural Ontario*

# Agriculture

**A**GRICULTURE in Canada is in its early youth compared with the centuries-old cultivation of the soil in most European countries. Almost 80 p.c. of the present crop acreage has come into use within the past 75 years although agriculture in Canada traces its origin to the early part of the 17th century with the arrival of French settlers at Quebec. As colonization continued throughout the Maritimes and Upper and Lower Canada the cultivation of the land also extended as a subsistence measure. However, it was the completion of the first transcontinental railway in 1885 that opened up to settlement the great prairie region west of the Great Lakes where 75 p.c. of the present cultivated land is found. Since then, demand for food in two world wars, the desire of thousands of people from densely settled areas in Europe and elsewhere to possess land of their own, and the ease with which land on the prairies could be brought under crop have added 193,000 sq. miles to Canada's occupied farm land to bring the total, in 1951, to 272,000 sq. miles or over 174,000,000 acres. The production from this vast acreage, particularly in the mid-west, has been far beyond the needs of the home market, so that Canada has become and still remains a leading exporter of food products to other countries.

As an employer, however, agriculture is giving way to manufacturing. At the beginning of the century, 46 p.c. of the labour force was employed in agriculture but by 1951 the proportion had decreased to 20 p.c.—the number of people earning their livelihood on farms dropped from 1,379,000 in June 1939 to 881,000 in June 1955. This does not mean that agricultural production has declined accordingly—on the contrary, it is now two and a half times greater than at the beginning of the century. Specialization, highly mechanized and more scientific farm operations as well as widespread electrification now permit much greater production with less manual labour. The fact that hired labourers in agriculture total only about 138,000 for the 575,000 farms in the country indicates the small reliance of the farmer on outside help.

The typical farm in Canada is the "family" farm and, regardless of the type of agriculture practised, the size of the farm is governed by the acreage the farmer and his family can handle with possibly some hired help for peak periods such as harvesting. There are, of course, farm projects of a scale and specialization that require additional year-round help, such as the large fruit and vegetable farms in southern Ontario and British Columbia and the larger dairy farms.

More than three-quarters of the farms in Canada are owner-occupied and owner-operated. In fruit-growing areas the farm may not exceed 12 to 20 acres; thousands of dairy and "mixed" farms are in the 100 to 150 acre class. Even on the prairies where grain growing is a major project, a farm of from 320 to 600 acres, depending upon soil and location, is considered as an efficient unit and may be successfully operated by a farm family.

The purchase of mechanized and electrical equipment has meant a heavy investment of capital by farm owners, particularly since the beginning of World War II, when the demand for manpower for industry and the



Armed Forces drained away the hired labour and the younger members of the farm family. In 1941 the value of farm machinery and equipment on Canadian farms, as shown in census returns, was \$596,046,000. By 1951 it had increased by 224 p.c. to \$1,933,312,000. The number of tractors alone increased from 160,000 to 400,000 in the same period and the estimate for 1955 is 475,000.

Because of Canada's pre-eminence as a world wheat supplier, there is a tendency, particularly among people of other countries, to look upon Canadian farmers largely as wheat growers. Important as this crop is in the agricultural economy, in terms of farm income its sale makes up only about 20 to 25 p.c. of total farm cash income. Actually, production of grain for livestock feeding has substantially exceeded the production of wheat. In two of the latest five years the oat crop alone has been slightly larger than the wheat crop in yield.

Livestock and livestock products form by far the largest source of income to Canadian farmers. Including poultry meat, they were valued in 1955 at \$853,837,000 compared with \$437,994,000 for dairy products, \$356,521,000 for wheat and \$318,167,000 for fruits, vegetables, eggs and other special crops.

The fact that Canada's exports of wheat and flour in the years 1953-55 were nearly double the quantity exported in 1937-39, while meat and live animal exports dropped nearly two-thirds in the same period, bears little relation to their relative volume of production. Though exports of meats were reduced, total output increased by 56 p.c. from the five-year average (1935-39) of 1,500,000 lb. to the 1955 total of 2,365,000 lb. The increase in population and heavier consumption of meat per capita more than absorbed the reduction in exports.

Canadians spend about a quarter of their income on food and are eating more beef, pork and poultry than they did in the past. In 1955 the per capita consumption of poultry meat was 30 lb., (an increase of approximately 8 lb. since 1950), beef was 72 lb. and pork 58 lb. Since 1953, beef consumption has increased by about 7 lb. per person and pork by approximately 3 lb. during the same period. Considering this greater demand for all meats and an increase in population of about 3 p.c. each year, it appears that there is and should continue to be a good outlet for Canadian meat products on the domestic market.

Total milk production in Canada increased nearly 2,000,000,000 lb. during the five years 1951-55 to reach an estimated 17,298,000,000 lb. Utilization of this quantity of milk is of concern to every dairyman, more particularly that portion used in the manufacture of the various dairy products. Allowing 6,978,000,000 lb. or about 40 p.c. for use in liquid form, the remaining 60 p.c. must be apportioned to the various manufactured products. Disappearance of all dairy products has increased during the past five years because of the population increase, but much greater use generally has been made of cheese, evaporated milk and dried skim milk.

Despite the increasing portion of all agricultural production being absorbed by the domestic market, Canada still remains a leading exporter of agricultural commodities. In the years 1935-39, exports averaged 33 p.c. of agricultural production. The amount has fluctuated considerably since then, reaching a peak of 69 p.c. in 1945 and dropping to 24 p.c. in 1953. In 1954 it was 27 p.c. The pattern of agricultural export trade has remained

substantially the same in recent years. The average value for 1953-55 was \$934,000,000, or nearly one-fifth of total merchandise exports. The value of exports of wheat and flour alone averaged \$515,000,000, approximately one-half of total agricultural exports. In each of the three years wheat competed with newsprint paper and planks and boards for top position. While exports of those products now finding a ready outlet on the domestic market have naturally declined, some grains apart from wheat, such as barley, rye and flaxseed, have shown marked increases in export markets.

As an importer of foodstuffs, Canada relies on more southerly countries for citrus and other fruits, cane sugar, coffee, tea and spices—products that cannot be produced in this northern country. Otherwise, aside from some out-of-season vegetables, Canada is self-sufficient in food supplies.

The dynamic factors in the agricultural picture of the future will undoubtedly be further technological improvements and growth of the domestic market. It is unlikely that much new land will be brought under cultivation since new land is no longer available in localities where it can be developed easily at low cost and provided with the social services now demanded in rural areas. But Canada has many thousands of acres of land in settled areas capable of much more intensive cultivation than at present. These areas are already supplied with electricity and transportation facilities, with schools, churches and other amenities of life. Scientific agriculture, too, is playing a leading part in increasing the potential output of Canadian farms. Hardier and higher-yielding varieties of almost all crops are constantly being developed; crop losses by insects, weeds and disease are being reduced;

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*Harvest-time in Eastern Canada.*



soil chemistry is making and keeping soils more fertile; irrigation and reclamation of suitable lands is receiving attention; improvement of livestock is under continual study as is the processing, transportation and marketing of the finished agricultural product.

Because of Canada's rapid economic development there has been some encroachment on farming land by industry. Naturally this is most pronounced in areas geographically suited for industrial development and in such areas some fertile farm land has been lost to agriculture. However, it seems probable that for some years to come, more intensive cultivation of the present established farming areas will compensate for any loss of agricultural lands to industry. A possible exception may be some highly specialized crops grown in areas where climatic conditions are the essential factor in production.

Agricultural development of Canada's northern areas, where frost frequently remains in the subsoil the year round, is unlikely to proceed faster than the influx of people into these areas. As the population increases, local demand for such farm products as the soil and climatic conditions make it possible to grow would then arise. Even so, the assessment of agricultural possibilities in these northern fringe areas is not being overlooked. Soil surveys being made by the Canada Department of Agriculture indicate that in some of the river valleys such as the Liard and Mackenzie, there are areas that can be farmed successfully should the need arise.

## **Government and Agriculture**

The agricultural industry is a most complex one and the Federal Government as well as the provincial governments have long realized the intricate problems that face the farmer. For this reason each government has established a department to assist the farmer in almost every field of his activities. These departments, along with their organization of scientists, technicians and fieldmen, work in close co-operation. In addition, services are necessary which will assure that food products are suitable for human consumption and are graded in accordance with established standards. This is particularly



*The mild, almost subtropical climate of the southern part of Vancouver Island permits the cultivation of crops that cannot be grown commercially elsewhere in Canada. Flowering bulbs and seeds are important products of this area.*

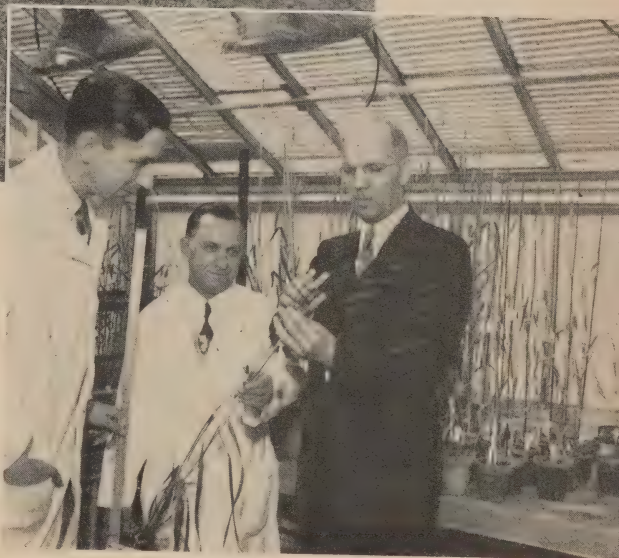




Winter wheat  
breeding nursery,  
Central Experi-  
mental Farm at  
Ottawa.

There is only one practical method of controlling cereal rusts—by breeding rust-resistant varieties and producing sufficient seed to take the place of susceptible varieties. The Scientific Service of the Department of Agriculture is constantly working on new varieties to combat different races of rust that might become epidemic in future.

Examining hybrid seeds from a cross produced under glass.



necessary for the many farm products, such as meats, dairy products and canned foods, that require considerable processing before they are ready for marketing. Standards are also necessary for farm products not grown for food such as seeds, livestock feeds and many products used by other industries. Also, such farm supplies as fertilizers, pesticides and the like, must conform to established regulations.

The work of the Canada Department of Agriculture may be divided into five main functions: research and experimentation; production and protection of crops and animals; marketing, including grading and inspection; price stability in marketing; and reclamation and development.

**Research and Experimentation.**—Research and experimentation covers almost every kind of technical problem met by farmers in the production and marketing of their commodities as well as those problems involved in the processing, curing, storing and distribution of farm products.

To carry on this vast and varied work, the Canada Department of Agriculture has a chain of experimental farms and research laboratories

located across the country. They are situated where they can best serve the needs of a wide variety of farming enterprises and of specialized areas of soil and climate. The work is co-ordinated through the headquarters of the Experimental Farms Service and the Science Service at Ottawa, where research is also constantly under way. Among the best known results of the Department's research are the origination of many new varieties of field crops and horticultural plants, methods of controlling pests and diseases, and soil fertility findings which have improved production and lowered costs. Discoveries in the field of animal diseases include the development of vaccines and other controls which have contributed materially to a high level of health in Canada's livestock and poultry.

An important and often misunderstood aspect of this research is that it must be continuous, for new problems constantly arise; indeed, the solution of one problem often leads to others. One example is the work on cereal grains which opened up the Canadian West. When cereal grains were first cultivated by man, plant diseases probably caused little damage. Through the years, by selection and breeding, better varieties were developed more suited to the many different climatic and soil conditions. These crops are now grown in many parts of the world and millions of bushels are harvested annually. In the meantime the diseases, at first thought so unimportant, developed and have caused enormous losses except where measures for their control are known and practised.

**Production and Protection of Crops and Animals.**—Safeguarding crops and livestock from disease which might be imported with shipments from abroad is an important part of the Department's work. In addition, extensive testing and research is undertaken to control the spread of disease within the country. Control of tuberculosis and many other contagious diseases in animals is typical of this work. Over half of the cattle in Canada are now in accredited areas, that is, in areas in which not more than one-half of one per cent of the cattle were found to be affected with tuberculosis at the latest TB test. Slightly over one-half of the remaining cattle are in tested areas which have not yet reached accredited status or areas where the accreditation has expired. When the remaining cattle have been tested and the reactors moved, a second test will probably show that the entire country can be classed as an Accredited Area. All meat animals are subject to veterinary inspection both before and after slaughter and regulations govern the methods used in and the sanitary conditions of meat and other processing establishments.

The promotion of the production of certified and registered seed and purebred livestock is also of great importance. Certification is maintained over registration and distribution. Standards are maintained which are widely accepted in other countries. Another type of activity is the enforcement of laws governing the sale of feeds, fertilizers, pesticides and many other products purchased by farmers.

**Marketing, including Grading and Inspection.**—Marketing activities, in general, consist of the establishment and enforcement of national standards for animal, dairy and poultry products, for canned foods, and for many fruits and vegetables. These standards are enforced by grading or inspection of commodities entering interprovincial and export trade. By arrangement and collaboration with provincial authorities, many commodities produced



*The change-over from dry-land farming to irrigation farming on thousands of acres of land in southern Alberta and Saskatchewan was a challenge to the farmer. He grew different crops using different machinery and faced an entirely new set of problems.*



*The growing of registered grain and legume seed crops is very profitable in Alberta's irrigated district. The land was weed-free when first settled and good farming practices have kept it that way. It has been found that irrigated land can be used to best advantage through mixed farming.*

within provincial boundaries are inspected and graded. (See p. 179 for information on co-operatives.)

**Reclamation and Development.**—For many years the Federal Government has provided financial assistance in connection with land and water resources. The work is done under the Prairie Farm Rehabilitation Act, 1935. The



administration of the Act is broad enough in its scope to meet the problems of rehabilitation, and flexible enough to enable formulation of joint policies with each provincial government, the rural municipalities or the farmer himself. The activities are classified as either intermediate or long-term. The intermediate program includes projects concerned with soil drifting on good lands; water developments for small farms; development of irrigation for feed production on a watershed basis; and community pastures. Water developments for small farms include dugouts, stock-watering and individual irrigation, the engineering and financial assistance for which extends to about one-third of the cost. Long-term projects involve many years of study. Engineering surveys are only a part, and it is necessary to have surveys of soil, economical water supply, climate and all those matters that affect land and people. Such projects include the St. Mary River Dam, completed in 1951, a key structure to bring water, when and where needed, to about 500,000 acres of fertile land in southern Alberta. Mention should also be made of the marshlands rehabilitation in Nova Scotia and New Brunswick. A joint effort is being made by those two provinces and the Federal Government to preserve and in some areas to restore the productivity of rich agricultural lands bordering the Bay of Fundy which are threatened by the sea. Some work has also been done in Prince Edward Island.

**Price Stability and Farm Credit Measures.**—Canada, like most agricultural countries, has measures designed to give price stability in marketing. Under the Agricultural Prices Support Act, 1944, the Federal Government may stabilize the price of any agricultural product (except wheat, which is handled separately) by outright purchase or by underwriting the market through guarantees or deficiency payments. This Act has been used to good purpose to stabilize the price of products such as butter and eggs which normally are subject to somewhat violent seasonal price fluctuations. It is also valuable in handling surpluses of a temporary nature. Farmers who market their products co-operatively can be assisted under the Agricultural Products Co-operative Marketing Act. Since 1939 the Act has aided farmers in pooling returns from the sale of their products by guaranteeing initial payments.

Another measure of considerable importance in price stabilization is the Agricultural Products Marketing Act, 1949. A number of provincial governments have established boards to control or regulate agricultural products produced and marketed within the province concerned. This Act enables such provincial marketing legislation, or any particular part of it, to be applied in the same way to the marketing of agricultural products outside that province and in export trade. The Prairie Farm Assistance Act, 1939, gives financial aid to Prairie Province farmers who suffer partial or total crop failure during years of drought.

The Federal Government has made provision for the extension of credit to farmers under two Acts. The Canadian Farm Loan Act, 1927, gives long-term and short-term farm mortgage credit and the Farm Improvement Loans Act, 1944, provides intermediate-term and short-term credit to enable farmers to equip, improve and develop their farms.

On Mar. 7, 1956, Royal assent was given to two Bills on grain legislation with respect to (1) payment of carrying costs of temporary wheat reserves and (2) provision for short-term credit to grain producers in the Prairie



*Cattle on this 54,000-acre ranch in southern Saskatchewan can be checked in an hour with the use of a small 'plane.*

Provinces. The carrying costs of temporary wheat reserves owned by the Canadian Wheat Board in respect of Board stocks of wheat in excess of 178,000,000 bu. at the commencement of a crop year will be paid for out of the Consolidated Revenue Fund. Under the loans legislation, loans up to a maximum of \$1,500 were made available through banks to producers in order to meet financial difficulties arising from their inability to deliver grain because of congested storage conditions. Loans amounting to about \$7,900,000 were made to 10,326 farmers under this legislation during the 1955-56 crop year.

**Marketing of Western Canadian Grain.**—The Canadian Wheat Board, a Crown corporation, is the general marketing agency for all wheat, oats and barley produced in Western Canada and sold commercially for interprovincial or export movement. The Board has been in operation for more than twenty years and an increasing number of western producers, particularly of the younger generation, have never marketed their grain in any other way.

The farmer places his grain in annual marketing pools operated by the Board. He receives an initial payment at the time he delivers the grain at a country elevator or into a railway car and participates on the basis of his grain deliveries in any surplus the Board may subsequently realize on the sale of the grain. Through the provision of that initial price guaranteed by the Government of Canada, the Board stands as a buffer between the farmer and the constantly changing conditions of supply, demand and price under which wheat is produced in Western Canada and throughout the world. At the same time the distribution of participation payments carried out by

the Board from time to time helps to steady the flow of income into the agricultural economy and to spread it throughout the year. The Board is also in a position to meet special marketing problems as they arise, such as the handling of the large quantity of out-of-condition and low-grade grain harvested in 1950 and 1951.

The Board has not always had its present extensive responsibilities. From 1935 to 1943 it operated as a voluntary wheat agency, purchasing wheat offered for sale by producers at a fixed initial price. The producer could either sell to the Board at that price or sell in the open market as he saw fit. However, in 1943 when agriculture was being marshalled to produce and distribute food for Canada and its Allies, the Board was given the exclusive wheat-marketing power which it now exercises throughout Western Canada. In 1949 these powers were extended to cover the marketing of oats and barley.

The Wheat Board is in a very real sense the servant of the producer, for whom it seeks to obtain the best possible returns for the grain entrusted to it. The Board also ensures, through its "delivery quota system", the equitable use of available grain storage facilities, which is particularly important in times when producers have more grain than the normal storage facilities of the country can handle adequately. The quota system is therefore administered primarily for the protection of the producers, although when there is conflict between market requirements and the delivery quota program, the general interest may be better served by giving precedence to the former.

The Board does not own or operate any grain-handling facilities in Canada, but business is carried on by agreements entered into each year with the elevator companies, which are co-operatively or privately owned. The companies undertake to finance the initial payment to producers, the storage of grain in country positions and delivery to terminal positions in accordance with Board regulations. Handling and carrying charges are included in the agreements.

When the marketing of all the grain in any pool is completed, the Board reckons the financial position of the pool, deducts its costs of operation and administrative expenses, and then pays to the producers in the form of participation payments any surplus realized. Handling expenses, including storage, interest, freight and other costs, may be quite substantial but the Board's cost of administration is exceptionally low.

The Canadian Wheat Board derives its authority from the Government of Canada through the Canadian Wheat Board Act and reports to Parliament through the Minister of Trade and Commerce. Its operations, which have far-reaching effects on the economy of the whole country and of Western Canada in particular, are subject to review by the Agricultural Committee of the House of Commons.

## ***Statistics of Agriculture***

### ***Farm Income***

The downward trend in the farming income of Canadian farmers, in evidence since 1951, was reversed in 1955. The income for that year was placed at \$1,454,268,000, about 22 p.c. higher than for 1954. The record





A great network of grain elevators—country, lake terminal, eastern transfer and export terminal—handles grain in bulk from farm to ultimate destination, either in domestic mills or ports of importing countries. Grain leaves the field by truck and is taken directly to country elevators located at practically every railway station and siding in the grain-producing areas of the prairies. Although portions of it move westward to Vancouver and northward to Churchill, the great bulk travels by rail to lakehead terminals at Fort William and Port Arthur and then moves eastward in specially designed freighters through the Great Lakes-St. Lawrence waterway.



terminal elevators at Fort William and Port Arthur have a storage capacity of about 17,000,000 bu.



reached in 1951 amounted to \$2,154,527,000 and the average for the postwar years 1946-54 was \$1,564,400,000.

### *Net Income of Farmers from Farming Operations, 1952-55*

Item	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000
1. Cash income.....	2,849,310	2,775,795	2,395,321	2,352,563
2. Income in kind.....	413,496	399,325	393,107	404,804
3. Value of changes in inventory.....	237,742	50,263	-115,409	210,812
<b>4. Gross Income (Items 1 + 2 + 3) ..</b>	<b>3,500,548</b>	<b>3,225,383</b>	<b>2,673,019</b>	<b>2,968,179</b>
5. Operating expenses and depreciation charges.....	1,582,206	1,530,057	1,485,529	1,547,249
6. Net income, excluding supplementary payments (Item 4-5).....	1,918,342	1,695,326	1,187,490	1,420,930
7. Supplementary payments.....	5,131	1,572	2,427	33,338
<b>8. Net Income of Farm Operators from Farming Operations.....</b>	<b>1,923,473</b>	<b>1,696,898</b>	<b>1,189,917</b>	<b>1,454,268</b>

The main factors contributing to the increase in 1955 over 1954 included larger grain crops in the prairies resulting in increased farm-held inventories at the end of the year, also larger inventories of livestock and a slightly higher value of income in kind which is the value of products grown by farm operators and used in the farm home plus an imputed rental value of the farm dwelling. Lower returns from the sale of farm products and higher operating expenses and depreciation charges offset these increases to some extent.

Cash income from the sale of farm products is the most important item of farm income and represents receipts from all products sold off farms during the year together with participation payments on the grain crops of the previous years. This item showed a decrease in 1955 of 1.8 p.c. as compared with 1954 and 17.4 p.c. as compared with the all-time high established in 1952. On a commodity basis, the most important reductions in 1955 were recorded for oats, barley, rye, clover and grass seed, hogs and total participation payments. The most important increases partly offsetting these decreases were for wheat, flaxseed, corn, potatoes, tobacco, cattle, poultry and dairy products.

The income from the sale of wheat rose from \$322,000,000 in 1954 to \$330,800,000 in 1955 but wheat participation payments totalling \$25,700,000 in 1955 were well below the 1954 payments of \$97,400,000; oats and barley payments provided a partial offset to the decline in wheat payments by rising from \$15,500,000 to \$21,500,000. The greatest proportional increase in cash income for any commodity was shown by flaxseed for which a substantial increase in marketings and higher prices provided an increase from \$20,000,000 to \$40,400,000. Higher marketings of corn and higher average prices for potatoes increased the returns for these two commodities.

Cash receipts from livestock almost equalled those of a year earlier. A substantial decline in the returns from hogs was balanced by an equal advance in income from the sale of cattle. Both marketings and prices were higher for cattle but for hogs higher marketings were offset by much lower prices. Income from dairy products was up in 1955 as a result of



*One of the four 1956 Master Farm Families of Alberta, chosen for farming and community enterprise. On their fine 590-acre farm, the emphasis is on the production of livestock but good returns are also received from potatoes, sugar beets and canning peas, successive plantings of which are broken with wheat, oats, barley and summerfallow.*



increased production but little change was indicated for eggs since higher prices were counterbalanced by smaller marketings.

Expenditures were higher for nearly all commodities and services used in the farm business. Rental payments, particularly share-rent payments in the Prairie Provinces, contributed more than any other single item to increased farm operating expenses. Property taxes continued their steady upward climb, rising from \$120,500,000 in 1954 to \$127,600,000 in 1955. Additional borrowings on the part of farmers increased their outlay in the form of interest payments. Higher prices and larger purchases of prepared livestock feeds were reflected in the increase in expenditures for feed from \$250,700,000 in 1954 to \$257,500,000 in 1955. Tractor expenses were estimated at \$132,400,000 compared with \$127,700,000 in 1954. Estimates indicate that farmers curtailed expenditures for hired labour and fertilizers during 1955. The wage bill, including the value of board and lodging, amounted to \$161,700,000 as against \$163,400,000 for 1954. Smaller purchases of fertilizer and slightly lower prices accounted for the reduction in farmers' outlay for this item.





Weighing flats of strawberries which have been grown on a fruit farm near Victoria, B.C., but will find their way, within days, to markets all across the country.

### Cash Income from the Sale of Farm Products, by Province, 1953-55

Province	1953	P.C. of Total	1954	P.C. of Total	1955	P.C. of Total
	\$'000		\$'000		\$'000	
Prince Edward Island...	22,929	0.8	24,392	1.0	25,489	1.1
Nova Scotia.....	40,297	1.5	44,296	1.9	45,066	1.9
New Brunswick.....	43,524	1.6	48,852	2.0	47,324	2.0
Quebec.....	393,589	14.2	406,960	17.0	424,986	18.1
Ontario.....	720,161	26.0	714,379	29.8	744,108	31.6
Manitoba.....	220,038	7.9	187,906	7.9	170,126	7.2
Saskatchewan.....	742,236	26.7	472,424	19.7	425,043	18.1
Alberta.....	486,475	17.5	387,828	16.2	363,081	15.4
British Columbia.....	106,546	3.8	108,284	4.5	107,340	4.6
<b>Totals.....</b>	<b>2,775,795</b>	<b>100.0</b>	<b>2,395,321</b>	<b>100.0</b>	<b>2,352,563</b>	<b>100.0</b>

### Cash Income from the Sale of Farm Products, by Source, 1955

Source	Cash Income	Source	Cash Income
	\$'000		\$'000
Grains, seeds and hay.....	549,588	Miscellaneous farm products....	44,485
Vegetables and other field crops...	178,956	Forest products sold off farms...	86,141
Livestock.....	853,837	Fur farming.....	13,247
Dairy products.....	437,994	<b>Cash Income from Sale of</b>	
Fruits.....	49,103	<b>Farm Products.....</b>	<b>2,352,563</b>
Eggs, wool, honey and maple products.....	139,212		

*Estimates for 1956.*—Early estimates indicate that farm net income in 1956 will be somewhat above the 1955 level. Cash income will be higher but will likely be offset to some extent by increased operating expenses and smaller additions to inventories. Grains, particularly wheat, will likely contribute the largest share to the cash returns although income from the sale of livestock is also expected to increase as a result of higher marketings of cattle and calves. Farm operating expenses and depreciation charges are expected to continue their upward trend, contributed to by almost all items used in farm

business operations with the most significant increase occurring in feeds. The build-up of farm stocks of grain continued during 1956 but at a much slower rate than in 1955. Total livestock numbers at the end of the year should be at about the same level as at the end of 1955, although there are likely to be fewer hogs.

## **Field Crops**

Seeding was late in most parts of Canada in 1956 and farming operations in Eastern Canada during the summer were repeatedly delayed by wet, cool weather. In Western Canada a spring drought gave way to timely rains and average temperatures, and a period of excellent autumn weather speeded harvesting to completion but not before early frosts had lowered the quality of the crop. Yields, with few exceptions, exceeded the recent ten-year average as well as 1955's high levels. In the Prairie Provinces the switch from barley and hard red spring wheat to oats, durum wheat and oilseed crops was a notable feature and new production records were established for flaxseed, rapeseed and mustard seed. Yields of the crops that thrive on warmer weather, such as corn and soybeans, were lower. Estimated production was greater than in 1955 for all crops except winter wheat, fall and spring rye, corn for grain, dry beans, soybeans, potatoes, sunflower seed, hay, field roots, and sugar beets.

Total marketings of the five major grains in Western Canada in 1955-56 amounted to some 567,300,000 bu. compared with 524,600,000 bu. in 1954-55 and the ten-year (1944-45—1953-54) average of 561,200,000 bu. Combined

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*A heavy oat crop in the Okanagan district of British Columbia. There oats are grown principally for livestock feed and are used generally on the same farm or in the same district where they are grown.*



exports of the five grains, including wheat flour, rolled oats and oatmeal, malt, pot and pearl barley in grain equivalent, totalled 406,500,000 bu. as against 370,700,000 bu. in 1954-55 and the ten-year average of 380,700,000 bu., although exports of oats and oat products at 4,100,000 bu. were the smallest since records began in 1908. Even though marketings were above average as a result of the large 1955-56 supplies, combined stocks of the five major grains at July 31, 1956 were estimated at 788,400,000 bu., an increase of 13 p.c. over the previous year and 117 p.c. above the ten-year average of 363,700,000 bu. Increased production in 1956, except for rye, resulted in still larger supplies for the 1956-57 crop year. Total supplies of the five major grains for 1956-57, consisting of July 31, 1956 carryover and 1956 production, were estimated in millions of bushels as follows (1955-56 figures in parentheses): wheat, 1,078,300,000 (993,900,000); oats, 652,900,000 (491,800,000); barley, 388,600,000 (343,900,000); rye, 23,900,000 (33,200,000); and flaxseed, 37,400,000 (22,000,000).

Because of widespread rains and frosts in several areas in late August and early September, only about 71 p.c. of the 1956 western crop of hard red spring wheat is expected to fall in grades 1 to 4 Northern. The total amount of high-grade durum wheat was larger than for many years but 4 C.W. amber durum was the largest single grade. The average protein content of the crop was reduced to 12.4 p.c. which is 0.6 p.c. below that of the 1955 crop, but average baking strength was much the same for both years, which reflects the superior quality of the protein in 1956.

### *Estimated Area, Yield and Production of Principal Field Crops, 1955 and 1956*

Crop	Area		Yield per Acre		Production	
	1955	1956	1955	1956	1955	1956
	acres	acres	bu.	bu.	bu.	bu.
All wheat.....	21,505,800	21,340,400	23.0	25.2	494,142,000	537,774,000
<i>Winter wheat.....</i>	<i>582,000</i>	<i>620,000</i>	<i>34.3</i>	<i>31.9</i>	<i>19,963,000</i>	<i>19,778,000</i>
<i>Spring wheat<sup>1</sup>.....</i>	<i>20,923,800</i>	<i>20,720,400</i>	<i>22.7</i>	<i>25.0</i>	<i>474,179,000</i>	<i>517,996,000</i>
Oats for grain.....	11,178,000	11,972,500	36.5	44.6	407,783,000	533,767,000
Barley.....	9,932,500	8,722,300	25.4	31.8	252,385,000	277,646,000
All rye.....	780,200	557,000	18.9	15.4	14,753,000	8,577,000
<i>Fall rye.....</i>	<i>568,900</i>	<i>395,100</i>	<i>19.9</i>	<i>15.3</i>	<i>11,343,000</i>	<i>6,034,000</i>
<i>Spring rye.....</i>	<i>211,300</i>	<i>161,900</i>	<i>16.1</i>	<i>15.7</i>	<i>3,410,000</i>	<i>2,543,000</i>
Flaxseed.....	1,838,400	3,139,000	10.7	11.1	19,748,000	34,935,000
Mixed grains.....	1,705,200	1,634,700	38.7	42.2	65,990,000	68,910,000
Corn for grain.....	507,000	439,000	62.1	54.5	31,510,000	23,918,000
Buckwheat.....	126,900	121,900	18.4	21.2	2,334,000	2,583,000
Peas, dry.....	49,100	48,200	15.2	20.0	748,000	965,000
Beans, dry.....	80,900	72,800	15.9	17.5	1,286,000	1,273,000
Soybeans.....	214,000	228,000	26.4	21.6	5,650,000	4,935,000
Potatoes.....	308,300	303,100	214.5	215.7	66,127,000	65,370,000
			lb.	lb.	lb.	lb.
Mustard seed.....	78,500	137,300	633	970	49,658,000	133,150,000
Rapeseed.....	136,200	357,000	568	855	77,395,000	305,350,000
Sunflower seed.....	18,000	25,000	800	500	14,400,000	12,500,000
			tons	tons	tons	tons
Tame hay.....	11,055,000	11,206,000	1.86	1.81	20,614,000	20,278,000
Fodder corn.....	366,400	400,300	9.34	8.64	3,423,400	3,460,000
Field roots.....	42,400	38,900	10.35	10.69	439,000	416,000
Sugar beets.....	81,908	78,878	11.98	11.32	981,014	892,955

<sup>1</sup> Includes relatively small quantities of winter wheat in all provinces except Ontario.



## Production, Imports and Exports of Wheat, Years Ended July 31, 1948-57

NOTE.—Wheat flour has been converted into bushels of wheat at the uniform average rate of  $4\frac{1}{2}$  bu. to the barrel of 196 lb. of flour.

Year ended July 31—	Production (Previous Year's Crop)	Imports of Wheat and Flour	Exports of Wheat and Flour	Domestic Dis- appearance
	'000 bu.	'000 bu.	'000 bu.	'000 bu.
1948.....	338,506	825	194,982	152,779
1949.....	381,413	289	232,329	124,672
1950.....	366,028	4	225,137	131,107
1951.....	466,490	12	240,961	148,538
1952.....	553,646	18	355,825	169,863
1953.....	701,922	17	385,527	150,405
1954.....	613,962	457	255,081	140,848
1955.....	308,909	178	251,909	159,104
1956.....	494,142	20	309,181	144,155
1957.....	537,774	—	—	—

**Quota and Delivery Policy.**—With bumper crops being harvested in five of the past six years, the pressure on Canada's grain storage and handling facilities remained great during 1956-57. The Canadian Wheat Board had under continuous review the situation with respect to the provision of adequate supplies of the various grains and grades in the desired positions at the right time to meet both domestic and export commitments. The Board placed durum wheat and flaxseed on a delivery quota basis at the start of the season. Wheat (excluding durum), oats, barley and rye were placed on an initial unit quota basis. Each permit holder, regardless of his acreage, was given an initial quota of 100 units entitling him to deliver a maximum of 300 bu.

*New frontiers on civilization's doorstep. There is enough black marshland spotted through the area south and east of Montreal to the United States border to produce the vegetable requirements of the Commonwealth. The potential of this land has long been known but only recently has a start been made on drainage and soil correction. Experience on the 5,000 acres now in full use indicates that yields of 700 bags of onions, 600 bu. of carrots and 500 bu. of potatoes per acre are easily obtainable.*



of wheat *or* 800 bu. of oats *or* 500 bu. of barley *or* 500 bu. of rye *or* any combination of these grains, not to exceed 100 units. Following this initial quota as space became available the Board again established general quotas based upon bushels per 'specified' acre. Durum wheat and flaxseed were on an initial delivery quota of 5 bu. per 'seeded' acre.

**Marketing of Major Grains.**—Although the commercial grain storage position continued tight during 1955-56, deliveries of wheat by western Canadian farmers amounted to some 353,000,000 bu. as against 319,800,000 bu. the preceding year and the recent ten-year average of 354,000,000 bu. Exports during 1955-56 consisted of 269,200,000 bu. of wheat and 40,000,000 bu. of flour in terms of wheat. The combined exports of 309,200,000 bu. of wheat and flour went to 87 countries and their territories and colonies during the crop year. Total domestic (commercial and farm) disappearance of wheat decreased from 159,100,000 bu. in 1954-55 to a level of 144,200,000 in 1955-56. Carryover stocks at July 31 increased from 499,700,000 bu. in 1955 to 540,600,000 bu. in 1956. Marketings of western Canadian wheat during the 1955-56 crop year was again conducted by the Canadian Wheat Board on a one-year pool basis with the initial payment set at \$1.40 per bu., basis No. 1 Northern in store Fort William-Port Arthur or Vancouver. The initial payment for No. 1 C.W. amber durum was established at \$1.50 per bu. The 1954-55 pool was closed out in May 1956 with producers averaging slightly more than \$1.65 per bu. for No. 1 Northern wheat.

Marketings of oats totalled 71,600,000 bu. during 1955-56 as against 70,200,000 bu. the previous year. Some 4,100,000 bu. of oats and oat products were exported and 52,600,000 bu. were used domestically. Commercial carryover increased from 30,600,000 bu. on July 31, 1955 to 47,900,000 on July 31, 1956. Total domestic disappearance, which includes disappearance of oats on farms where grown as well as sales, was placed at 368,500,000 bu. in 1955-56 as against 326,400,000 bu. in 1954-55. Farmers marketed 114,500,000 bu. of barley in 1955-56. Of this amount 68,700,000 bu. were exported in various forms, some 34,700,000 bu. were sold for use in Canada and the remainder added to commercial carryover. Total domestic disappearance, commercial and farm, in 1955-56 is placed at 164,200,000 bu. as against 149,100,000 bu. in 1954-55.

## **Livestock**

Livestock is the foundation of agricultural economy in many areas of Canada. The largest cattle ranches are found in Alberta in the foothills of the Rockies and across the northern part of that Province into Saskatchewan, in the interior plateaux of British Columbia, in the extreme south of Saskatchewan and in northern and eastern Manitoba. In the east, the Georgian Bay district of Ontario, a great part of Prince Edward Island and an area in western Nova Scotia are devoted primarily to the raising of livestock. However, it is from the mixed farm, the type most prevalent throughout the country other than in the wheat-growing areas of the mid-west, that a great proportion of livestock comes. On the mixed farm, small herds of dairy or meat animals have been found to be the most lucrative of the cash producers and even on some farms specializing in other types of production, livestock, particularly beef cattle and hogs, is raised as an income stabilizer.

livestock and live-  
stock products  
form by far the  
largest source of  
income to Cana-  
dian farmers.  
Most of the rap-  
idly growing pro-  
duction is ab-  
sorbed by the  
Canadian market,  
exports having  
been greatly re-  
duced in recent  
years.



Comparison of the numbers of livestock on farms at June 1, 1956 with the same date a year earlier indicate that cattle and calves at 10,465,000 (milk cows 3,348,000 and other cattle 7,117,000) reached an all-time high, 2 p.c. above 1955, hogs at 5,680,000 decreased about 6 p.c., sheep and lambs at 1,706,000 remained about the same, but horses continued their downward trend and at 851,500 were about 50,000 fewer than in 1955.

Prices for cattle in 1955 were stable despite an increase of about 10 p.c. in the movement to public stockyards and packing plants. Good steers, up to 1,000 lb., averaged \$19.60 per cwt. (\$19.25 in 1954) at Toronto. However, with hog deliveries 16.5 p.c. higher than in 1954, hog prices dropped sharply and B1 dressed hogs, at Toronto, averaged \$25.05 per cwt. (\$30.90 in 1954).

### Estimated Meat Production and Consumption, 1954 and 1955

Item	1954		1955	
	Beef		Veal	
Animals slaughtered..... No.	2,268,100	2,345,700	1,465,000	1,342,900
Animals exported.....	85,971	63,586	3,223	4,027
Meat production <sup>1</sup> ..... '000 lb.	1,101,031	1,139,078	153,816	139,548
Total domestic disappearance.... "	1,094,758	1,122,396	154,016	137,173
Per capita disappearance..... lb.	72.0	72.0	10.1	8.8
	Pork		Mutton and Lamb	
Animals slaughtered..... No.	7,082,200	7,950,600	728,600	808,100
Animals exported..... "	26,508	8,930	2,402	8,874
Meat production <sup>1</sup> ..... '000 lb.	917,171	1,019,121	31,015	34,167
Total domestic disappearance.... "	815,282	904,338	38,406	43,389
Per capita disappearance..... lb.	53.7	58.0	2.5	2.8
	Offal		Canned Meat	
Production..... '000 lb.	89,447	94,973	57,450	75,606
Total domestic disappearance.... "	80,391	89,555	68,139	70,706
Per capita disappearance..... lb.	5.3	5.7	4.5	4.5

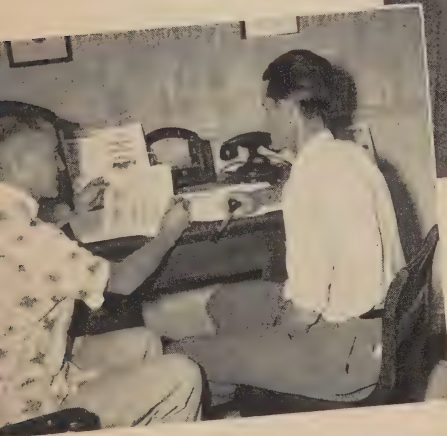
<sup>1</sup> Production from animals slaughtered in Canada, basis cold dressed carcass weight excluding offal and, in the case of pork, fats and offal.





The size of a farmer's profits, like those of any private business, depends on his enterprise as an owner and manager. Farming today is a specialized industry demanding careful planning, sound judgment and detailed accounting.

*This integrated dairy farm, started on worked-out land less than fifteen years ago with little capital backing, in 1955 produced the highest income among all the dairy farms surveyed by the Ontario Agricultural College.*



Per capita consumption of beef held at 72.0 lb. as in 1954 but pork consumption influenced by lower prices rose to 58.0 lb. from 53.7 lb.

As 1956 drew to a close it seemed almost certain that total Canadian meat output would be the largest for any peacetime year and in fact only slightly below the all-time high production of 1,900,000,000 lb. in 1944, the peak year of the war. Record output of beef and veal was the main factor, for pork production for the year as a whole was only slightly higher than in 1955 and far below the peak of 1944 when Canada was supplying huge quantities of Wiltshire bacon to Britain. The domestic market proved itself capable of absorbing most of the larger supply and consequently the proportion exported was much smaller than in most recent years.

## Dairying

Dairying is perhaps the most general of all types of farming in the agricultural areas of Canada. Dairy farmers whose chief income is derived from the sale of milk or surplus breeding stock are mostly located within economic trucking distance of the larger towns and cities in all provinces. At greater distances dairying is combined with bacon hog production, raising of poultry, or the sale of cash crops such as potatoes or grain, selected according to adaptability for the particular area.

Milk production in Canada has shown a steady increase each year since 1951, the output in 1956 at 17,303,082,000 lb. being the highest on record. The fluid milk and creamery butter markets, expanded by the growth in population, absorbed most of the increased production. The average daily consumption of fluid milk per capita remains approximately the same at just under one pint and the annual consumption of butter at about 21 lb. The quantity of butter manufactured in 1956 amounted to 323,680,000 lb. of which 317,871,000 lb. was creamery butter and the remainder dairy and whey butter.

Most of Canada's production of cheese is now absorbed by the domestic market. Of the total cheddar output of 84,144,000 lb. in 1956, 71,379,000 lb. were used in Canada; per capita consumption in that year was 4.4 lb. compared with 4.9 lb. in 1955 and 3.7 lb. in 1942. Production of cheese other than cheddar is also increasing, output of special types in 1956 amounting to 8,938,000 lb. compared with 7,574,000 lb. in 1955 and 1,216,000 lb. in 1942.

The sale of dairy products added \$445,913,000 to the cash income of farmers in 1956 as compared with \$438,392,000 in 1955. The increase was accounted for by higher production as well as by a rise of five cents in the average price of milk sold off farms.

### Dairy Production by Economic Area, 1955 and 1956

Economic Area and Year	Total Milk Production	Milk Used in Fluid Sales	Products Manufactured <sup>1</sup>			
			Butter		Cheddar Cheese	Ice Cream
			Creamery	Dairy		
	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 lb.	'000 gal.
Maritimes.....1955	1,139,058	362,395	20,390	3,109	1,440	2,404
1956	1,147,715	375,157	19,840	3,142	1,689	2,428
Que. and Ont....1955	11,603,542	3,805,006	208,907	4,469	74,560	20,313
1956	11,701,532	3,986,062	201,877	4,641	78,861	20,445
Prairies.....1955	3,786,800	776,291	83,180	10,273	3,287	6,376
1956	3,705,969	817,668	78,679	10,176	3,032	6,540
B.C.....1955	769,071	386,445	6,100	732	693	3,317
1956	747,866	410,358	2,852	630	562	3,804
<b>Totals.....1955</b>	<b>17,298,471</b>	<b>5,330,137</b>	<b>318,577</b>	<b>18,583</b>	<b>79,980</b>	<b>32,410</b>
<b>                  1956</b>	<b>17,303,082</b>	<b>5,589,245</b>	<b>303,248</b>	<b>18,589</b>	<b>84,144</b>	<b>33,217</b>

<sup>1</sup> Not included in this table are: whey butter with a production of 1,843,000 lb. in 1956 and 1,817,000 lb. in 1955, other cheese with 8,938,000 lb. and 7,574,000 lb., respectively, and concentrated milk products with 484,020,000 lb. and 474,599,000 lb., respectively.

## Poultry and Eggs

Poultry and eggs are also universally common products of the mixed farm, although there is a definite tendency toward the establishment of larger specialized poultry farms. The poultry meat situation is being dominated

by the development of new and more efficient methods of raising chicken and turkey broilers with the result that these branches of the industry are now the major sources of poultry meat supply in the country. The number of chickens on farms increased by about 3 p.c. from 1954 to 1955 and turkeys were up by 20 p.c. but considerably fewer geese and ducks were reported. The numbers on June 1, 1956, were: hens and chickens, 63,680,000; turkeys, 4,014,000; geese, 326,000; and ducks, 420,000.

Production of eggs in 1955 at 383,210,000 doz. was 2 p.c. lower than 1954 production and per capita consumption declined from 24.4 doz. to 24.0 doz. Poultry meat output was up about 5 p.c. to 443,169,000 lb. and domestic disappearance amounted to 29.7 lb. per capita compared with 28.7 lb. in 1954.

### *Quantity and Value of Eggs and Poultry Meat Produced, by Province, 1955*

Province	Eggs		Poultry Meat	
	Production	Value	Production	Value
	'000 doz.	\$'000	'000 lb.	\$'000
Maritime Provinces.....	33,513	15,111	20,988	9,710
Quebec.....	57,460	26,241	83,650	38,323
Ontario.....	144,693	61,730	184,841	73,092
Prairie Provinces.....	117,766	40,625	120,925	39,967
British Columbia.....	29,778	13,634	32,765	14,213
<b>Totals, 1955.....</b>	<b>383,210</b>	<b>157,341</b>	<b>443,169</b>	<b>175,305</b>
<b>1954.....</b>	<b>392,406</b>	<b>148,074</b>	<b>421,456</b>	<b>163,018</b>

### *Fruit Growing*

The apple is the most important of the commercial fruits grown in Canada. In 1955, 19,142,000 bu. with a farm value of \$10,870,000 were produced, the second largest crop on record; 34 p.c. of the crop was grown in British Columbia, 21 p.c. in Ontario, 26 p.c. in Quebec, 17 p.c. in Nova Scotia and 2 p.c. in New Brunswick. The average price received by the growers in these areas for unpacked fruit differed considerably, ranging from 39 cents per bu. in Quebec to 80 cents per bu. in New Brunswick. The 1956 apple crop was poor in most areas and was estimated at 12,042,000 bu.

### *Values of Fruits Produced, 1952-55, with Averages 1947-51*

Fruit	Average 1947-51	1952	1953	1954	1955
	\$'000	\$'000	\$'000	\$'000	\$'000
Apples.....	14,705	17,391	17,578	17,965	10,870
Pears.....	1,959	2,371	2,653	2,246	2,579
Plums and prunes.....	1,120	1,033	1,252	1,467	1,068
Peaches.....	3,804	5,152	5,543	5,208	6,125
Apricots.....	298	342	425	293	316
Cherries.....	2,431	2,113	2,658	3,421	3,503
Strawberries.....	5,969	6,077	6,405	6,870	5,910
Raspberries.....	3,161	2,565	3,661	3,131	2,775
Grapes.....	2,899	3,052	3,496	3,926	3,622
Loganberries.....	189	158	197	162	178
Blueberries.....	—	3,384	3,339	3,409	2,688
<b>Totals.....</b>	<b>36,535</b>	<b>43,638</b>	<b>47,207</b>	<b>48,098</b>	<b>39,634</b>





Commercial fruit growing in Canada is confined to rather limited areas in the Maritime Provinces, along the St. Lawrence Valley and in southern Ontario and British Columbia. But from these specialized production areas comes almost all of the deciduous fruit used in Canada.



Strawberries are grown in commercial quantities in the above five provinces and raspberries in most of them, but production of pears, peaches, cherries, plums and prunes is very largely confined to British Columbia and Ontario. Ontario produces a large proportion of all the grapes grown in Canada and British Columbia is the only province in which apricots and loganberries are grown commercially.

Production of all tender tree fruits was lower in 1956 than in 1955, as well as production of strawberries, raspberries, loganberries and grapes. November 1956 estimates of production with final figures for 1955 in parentheses, were: pears 1,437,000 bu. (1,510,000); plums and prunes 612,000 bu. (828,000); peaches 1,591,000 bu. (2,883,000); apricots 111,000 bu. (184,000); cherries 461,000 bu. (763,000); strawberries 17,515,000 qt. (22,674,000); raspberries 6,394,000 qt. (12,099,000); loganberries 297,000 lb. (1,237,000); and grapes 80,423,000 lb. (94,752,000).



*Canada's forest cover is its most important natural resource. It maintains agricultural lands against drought and erosion, continuously protects water catchment areas and assures supplies of water which, when put to use as electric power, make possible the exploitation of vast mineral deposits and the establishment of manufacturing industries.*

# Forestry

THE great bands of forest that lie across the land from Atlantic to Pacific are Canada's greatest renewable resource. Their contribution to the nation's growth throughout the years and to its current economy is almost immeasurable. The forest industries employ more than 351,000 people and pay over \$1,100,000,000 in salaries and wages each year. They keep armies of workers employed in other industries, notably the chemical, machinery and electrical equipment industries and also in fields of transportation, agriculture and hydro-electric power. They provide much-needed foreign exchange to offset Canada's expensive purchases abroad. The value of exports of forest products amounting to \$1,520,921,000 in 1955 is almost double the value of exports of the next important group of industries. The forest industries in 1955 produced goods valued at \$2,000,000,000 which was 25 p.c. of the net value of production of all Canadian manufacturing industries. Of this figure, \$640,000,000 came from woods operations, \$269,000,000 from the lumber industry and \$600,000,000 from the pulp and paper industry. Clearly, Canada has a tremendous stake in its forests and in maintaining and managing them in a perpetually productive condition.

The forest area of the country is estimated at over 1,620,000 sq. miles, 45 p.c. of the total land area. More than 51 p.c. of this forested area is considered to be productive and, of the productive area, 76 p.c. is at present accessible. Trees of merchantable dimensions occupy 60 p.c. of this accessible area and the remainder is occupied by young trees that will grow to merchantable size. The forest areas that are considered unproductive in the sense that they do not produce crops of merchantable timber because of adverse climate, soil or moisture conditions and the areas that are presently inaccessible are still of great value in providing protection for drainage basins and shelter for game and fur-bearing animals. Of the total productive forests, 65 p.c. is comprised of softwood, 24 p.c. mixed wood and 11 p.c. hardwood. There are more than 150 tree species in Canada, 31 p.c. of which are conifers.

The vast bulk of Canada's forests—93 p.c.—is owned by the people of Canada in right of the Crown. Only 7 p.c. is privately owned by individuals or corporations. Rights to cut Crown timber under lease or licence are now granted on 15 p.c. of the total forest land. All Crown lands in the provinces are administered by the provincial governments, with the exception of certain forest reserves, National Parks and forest experiment stations which come under the jurisdiction of the Federal Government. The latter also administers the forests in the nearly 1,500,000 sq. miles of land area in the Yukon and Northwest Territories.

Forest growth is generally prolific in Canada and the saving of the woodlands ordinarily involves only proper management. The forested area supports a total volume of 449,000,000,000 cu. feet of merchantable timber and since depletion through cutting and losses by fire amount to approximately 4,000,000,000 cu. feet a year, it is unlikely that a timber famine will occur in the near future. However, there are many areas in the most highly accessible and most productive regions where cutting exceeds growth or where individual highly valued species are being badly overcut.





*Behind the magical transformation of a tree into one of a host of objects—a fragile tissue, a length of gleaming satin, building board, fine paper or newsprint—lies years of patient study. The Canadian industry, with government assistance, holds a position of leadership among the nations in pulp and paper research.*

There has been a gradual awareness of the need for better forest management and better utilization of the products of the forest has increased in intensity during the past decade. Governments have made much progress toward planned management and many have called Royal Commissions to point the way toward better legislation and administration. Forest management licencing systems have been adopted and in the provinces where there is a high proportion of private land some public control of such lands has been adopted. The Federal Government has built a number of new laboratories for scientific investigation and has extended co-operation with the provinces under the Canada Forestry Act to include inventories, reforestation and fire protection. Industries, in co-operation with provincial governments, have begun operating their holdings under sound forestry principles and are developing methods of operation involving maximum utilization of the forests at their disposal. Management of private lands has also begun to improve under the impetus of the Tree Farm Program.

Today, forest operations are thoroughly modern industrial undertakings in which up-to-date means of communication are used to direct the tens of thousands of workers over areas measured in tens of thousands of square miles. The wood is cut and moved by modern mechanical methods best suited to the characteristics of the individual region. Logging is becoming less seasonal in nature and because in many instances woodlands are being harvested on the basis of perpetual yield, permanent forest communities have been set up and living conditions for woodworkers greatly improved.

### **Forest Industries**

The forest industries of Canada are classified as woods operations, the lumber industry, the pulp and paper industry and the wood-using and paper-using industries, the latter groups using partially manufactured wood, pulp or paper as their raw materials.

**Woods Operations.**—The output of Canada's forests in 1954 was 2.3 p.c. higher in volume but 0.9 p.c. lower in value than in 1953. The actual "cut" in the forest in 1954 amounted to 3,661,963,000 cu. feet valued at \$776,419,236. Preliminary estimates for 1955 indicate an increase of approximately 200,000,000 cu. feet in the volume of the wood harvest over 1954. More than 94 p.c. of the merchantable timber cut in Canada in 1954 was retained in the country for immediate use or as raw material for further domestic manufacture and about 6 p.c. was exported in manufactured or partly manufactured form.

### *Value of Primary Forest Production, 1953 and 1954*

Product	1953	1954
	\$	\$
Logs and bolts.....	308,965,959	302,565,201
Pulpwood.....	370,912,264	373,096,937
Fuelwood.....	62,766,922	64,608,114
Hewn railway ties.....	771,421	491,014
Poles.....	15,798,908	13,612,652
Round mining timber.....	8,530,523	6,812,059
Fence posts.....	3,062,977	2,716,120
Wood for distillation.....	415,271	467,645
Fence rails.....	679,151	614,327
Miscellaneous.....	11,643,562	11,435,167
<b>Totals.....</b>	<b>783,546,958</b>	<b>776,419,236</b>

The most important primary forest product in Canada is pulpwood which heads the list of forest products by value in Quebec, Ontario, New Brunswick, Newfoundland and Manitoba. Logs and bolts come first in value of production for British Columbia, Alberta and Nova Scotia.

The already long list of specialized equipment used in the woods, in the mills and in transportation, is being added to continually. Heavy road-building logging machinery has improved logging roads and, coupled with powerful high-capacity trucks, has reduced handling charges and permitted the opening up of stands of timber formerly considered inaccessible.



**Lumber.**—Production of sawn lumber in Canada in 1955 amounted to 7,920,033,000 ft. b.m., a new record, surpassing by 8.4 p.c. the peak attained in 1953. Total value also reached a new high of \$541,563,241, a gain of 9.5 p.c. over 1953. This production, which excludes some amounts from very small mills and custom sawing in other wood-using industries, was obtained from 7,238 sawmills, 1,875 of them in British Columbia, 1,575 in Quebec and 1,039 in Ontario. Mills range in size from giants (in British Columbia) capable of cutting as much as half a million feet board measure in a single shift to small mills producing one to two thousand feet a day. One hundred and one mills, representing 1.4 p.c. of the total number of sawmills, accounted for over 48 p.c. of the total volume of production. Most of the lumber cut in Canada is spruce with Douglas fir a close second, followed by hemlock, cedar, white pine and jack pine, balsam fir, yellow birch and tamarack. Douglas fir takes first place in total value.

Over 43 p.c. of the lumber produced in Canada in 1955 was exported at a value of just over \$285,000,000.

### *Production of Sawn Lumber and All Sawmill Products, 1955*

Province or Territory	Sawn Lumber Production		Total Sawmill Products
	'000 ft. b.m.	\$	\$
Newfoundland.....	32,691	1,996,166	2,114,437
Prince Edward Island.....	9,610	534,194	593,050
Nova Scotia.....	353,682	21,309,769	23,057,289
New Brunswick.....	275,186	17,867,953	20,751,935
Quebec.....	1,025,094	69,545,538	81,381,163
Ontario.....	759,976	58,654,467	69,872,231
Manitoba.....	46,627	2,694,833	3,080,222
Saskatchewan.....	75,233	4,125,631	4,339,875
Alberta.....	421,616	22,288,596	23,853,097
British Columbia.....	4,914,285	342,058,910	414,944,542
Yukon and Northwest Territories.....	6,033	487,184	495,149
<b>Canada.....</b>	<b>7,920,033</b>	<b>541,563,241</b>	<b>644,482,990</b>

The 1955 gross value of \$644,482,990 included: sawn lumber (\$541,563,241); shingles (\$29,795,687); ties (\$8,963,430); box shooks (\$3,093,671); flatted mine timbers (\$1,710,393); lath (\$1,613,497); hardwood squares (\$1,151,158); staves and heading (\$891,504); and pickets (\$680,515).

**Pulp and Paper.**—From 1946 to 1955 continuously, the pulp and paper industry ranked first in gross value of products among all manufacturing industries as well as first in wages and salaries paid. Except during the war years 1942-44, the industry also ranked first in net value of production, having achieved that position in 1920. With respect to number of persons employed, it took first place in 1955 replacing sawmills which topped the list for years.

In little over half a century the pulp and paper industry in Canada has become one of the world's great industrial enterprises. Several factors have been responsible: Canada possesses over half the pulpwood resources of North America; cheap and abundant water power is found close to pulpwood stands, and extensive river systems can be used to transport pulpwood to the mills. Contributing factors are the growth of population on the North American Continent, increased literacy and the growth of voluminous daily newspapers,





*Newsprint mill, Powell River, B.C. Every province in Canada, with the exception of Saskatchewan and Prince Edward Island, contributes to the production of pulp and paper. Two new mills in Alberta have recently brought that province into the picture.*

the adoption of technical improvements in the building and printing trades and the advance of modern merchandising techniques—for example, the development of product packaging and its display in self-serve supermarkets. Recent developments in the use of chemical pulp by-products and the unused wood from sawn lumber operations have contributed to greater utilization of formerly waste wood products and have created whole new industries.

In 1955, the value of factory shipments of the pulp and paper industry reached an all-time record. The value added by manufacture was 7.5 p.c. above 1954 and, as a measure of the industry's growth in the past three decades, was 464 p.c. higher than pre-depression 1929. In 1955 there were 125 operating mills, 31 classed as pulp mills, 25 as paper mills, and the remaining 69 as combined pulp and paper mills.

Sixty-seven mills accounted for 92 p.c. of the gross value of production of the industry in 1954. The 100 mills manufacturing pulp produced 10,150,547 tons valued at \$693,402,831 in 1955, representing increases of 5 p.c. in volume and 6 p.c. in value over 1954. About 23 p.c. of the total pulp production was made for export, 72 p.c. for use by the mills themselves in paper-making and 5 p.c. for sale in Canada. Groundwood or mechanical

pulp formed 54 p.c. of the total pulp production, sulphite pulp 28 p.c. and sulphate pulp 14 p.c. Quebec province leads in pulp manufacture, followed by Ontario, British Columbia, New Brunswick, Newfoundland, Nova Scotia, Manitoba and Alberta, in that order. Quebec and Ontario together account for 71 p.c. of the total production.

Among the many kinds and grades of paper and paper boards produced in Canada, newsprint is the top product, forming 77 p.c. of the total and 96 p.c. of the amount exported. Quebec and Ontario together accounted for 75 p.c. of all newsprint produced in Canada in 1955. Nineteen fifty-five's 6,196,319 tons of newsprint was the highest production ever recorded in Canada and was valued at \$688,338,369, increases of 3.3 p.c. in tonnage and 4.7 p.c. in value over 1954. More than half the world's newsprint requirements was supplied by Canada in 1954 and in that year the United States took 88 p.c. of Canada's exports of more than 5,521,000 tons; the remainder was distributed among 65 other countries. Of all commodities exported from Canada in 1954 and 1955, newsprint was first and pulp fourth in export value for both years. Though pulp and newsprint move freely on world markets, fine and specialty paper and other paper products are subject to tariff restriction. As a consequence, Canadian manufactures in this field are largely for domestic use and considerable quantities are also imported. In 1955, Canada imported paper and paper goods valued at nearly \$53,000,000, including fully manufactured articles and specially processed goods for use in Canadian paper-making industries. Domestic production of papers and paper boards in 1955 totalled 8,000,213 tons valued at \$981,439,247.

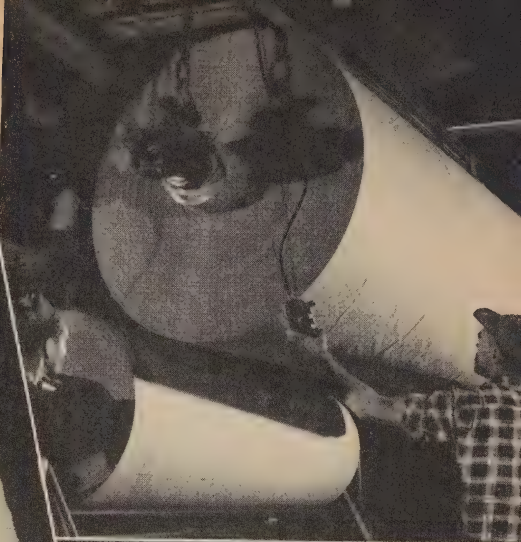
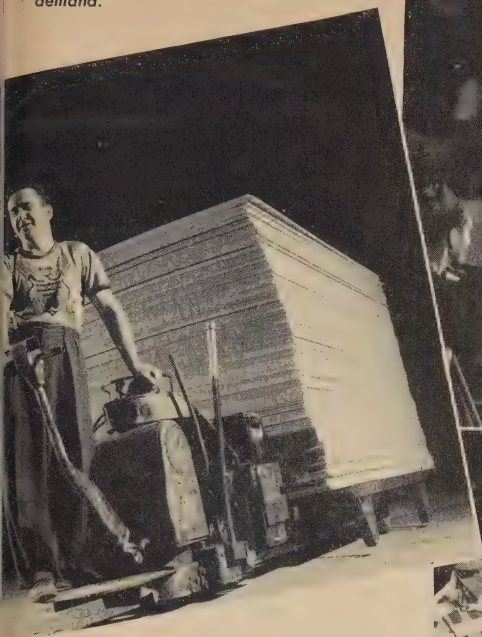
### *Principal Statistics of the Pulp and Paper Industry, 1930, 1940, 1954 and 1955*

Item	1930	1940	1954	1955
Establishments..... No.	109	103	125	125
Employees..... "	33,207	34,719	60,837	62,205
Salaries and wages.....\$	45,774,976	56,073,812	252,598,383	265,298,119
Gross value of factory shipments.....\$	215,674,246	298,034,843	1,241,665,451	1,326,938,138
Value added by manufacture.....\$	107,523,731	158,230,575	641,517,070	689,818,173
Pulp produced.....tons	3,619,345	5,290,762	9,673,016	10,150,547
\$	112,355,872	149,005,267	655,916,738	693,402,831
Paper produced.....tons	2,926,787	4,319,414	7,649,607	8,000,213
\$	173,305,874	225,836,809	925,590,643	981,439,247
Pulp exported.....tons	760,220	1,068,516	2,180,416	2,366,133
\$	39,059,979	60,930,149	271,418,005	297,304,069
Newsprint exported...tons	2,332,510	3,242,789	5,521,530	5,763,167
\$	133,370,932	151,360,196	635,669,692	665,876,987

**Wood-Using Industries.**—This group includes thirteen industries, other than sawmills and pulpmills, using wood as their principal raw material. In 1954, these industries, comprising 4,469 establishments, gave employment to 71,921 persons and paid out \$183,550,683 in salaries and wages. The gross value of their products was \$633,773,407 and the net value \$303,571,257. The furniture industry (which includes metal furniture as well) accounted for \$232,704,198 of the total output, the sash, door and planing mills industry for \$200,200,315, the veneer and plywood industry for \$92,848,867, and the hardwood flooring industry for \$15,645,422. The other industries making up



*Paper and paperboard, particularly the tough cheap paper stocks, is the raw material for many products now in great demand.*



*Subjected to treatment, it emerges as coated, sensitized or corrugated paper, bags, boxes and containers of all kinds, wallboard, composition roofing and siding and other commodities.*



the remaining \$92,374,605 included: boxes, baskets and crates; wood-turning; morticians' goods; cooperage; woodenware; lasts, trees and wooden shoe findings; beekeepers' and poultrymen's supplies; excelsior, etc.

**Paper-Using Industries.**—Three industries engaged primarily in manufacturing commodities of paper and paperboard constitute this group, which, in 1954 comprised 444 establishments, employed 26,533 persons and distributed \$78,957,643 in salaries and wages. The gross value of factory shipments was \$388,604,150 and the net value \$160,870,087. The paper box and bag industry contributed products valued at \$194,242,948 to the total output, the roofing paper industry \$38,931,254, and the miscellaneous paper goods industry \$155,429,948.





The Bersimis watershed, a mountainous land of virgin spruce forests until five years ago unknown and uninhabited, is now the site of one of man's major power achievements. From this wilderness of forests and rivers has been developed a powerful giant which is adding its energy to Quebec's ever-expanding capacity. Two generators started the flow of current over 400 miles of transmission line to Montreal in November 1956. Eventual capacity will be 1,200,000 h.p.

# Water Power

CANADA'S extensive and well-distributed water-power resources have been a major factor in the country's economic growth. Coincident with the development of its power resources, the nation's economy has become increasingly dependent on industrial operations. The availability of large amounts of electric energy produced by water power has made possible the exploitation of forest and mineral resources and the production of basic materials from those sources has fostered the establishment of secondary industries which are no less dependent on a sufficient supply of low-cost electricity. Indirectly, the increased employment offered by expanding industry has added to the prosperity of the individual and, although the present high standard of living enjoyed in Canada depends on many factors, one of the main contributions thereto is the widespread availability of cheap electric energy in the cities, towns and villages and on a large proportion of the farms, permitting the use of many conveniences and labour-saving devices.

Canadians, second largest per capita consumers of electricity in the world, are now using more power than ever before. So great has been the increase that power planners are being forced to revise upwards their forecasts of future requirements. Although certain sections of the country will have developed fully their major water-power resources within the foreseeable future, other regions have great hopes for future progress through continued development of available sites.

The following table lists, by provinces and under two conditions of flow, the total power potential of all presently tabulated water-power sites in Canada, together with the installed capacity of all existing water-power developments as of Jan. 1, 1957.

*Available and Developed Water Power by Province, Jan. 1, 1957*

Province or Territory	Available 24-Hour Power at 80 p.c. Efficiency		Turbine Installation
	At Ordinary Minimum Flow	At Ordinary Six-Month Flow	
	h.p.	h.p.	h.p.
Newfoundland.....	958,500	2,754,000	336,750
Prince Edward Island.....	500	3,000	1,882
Nova Scotia.....	25,500	156,000	177,018
New Brunswick.....	123,000	334,000	164,130
Quebec.....	10,896,000	20,445,000	8,489,957
Ontario.....	5,407,000	7,261,000	5,441,866
Manitoba.....	3,333,000	5,562,000	796,900
Saskatchewan.....	550,000	1,120,000	109,835
Alberta.....	508,000	1,258,000	285,010
British Columbia.....	7,023,000	10,998,000	2,566,460
Yukon and Northwest Territories.....	382,500	814,000	33,240
<b>Canada.....</b>	<b>29,207,000</b>	<b>50,705,000</b>	<b>18,403,048</b>

Total resources under the condition of "ordinary six-month flow" are estimated to be nearly 51,000,000 h.p. However, as it is the usual practice to

install excess capacity at developed sites, it may be said that the presently recorded water-power resources of Canada will permit an economic turbine installation of nearly 66,000,000 h.p. Therefore the present total turbine installation of 18,403,048 h.p. represents the development of about 28 p.c. of recorded resources.

Canada's installed hydro-electric capacity of over 18,000,000 h.p. is higher than that of any other country with the exception of the United States which has an installation of approximately twice that amount. On a per capita basis, Norway comes first with 1.3 h.p. and Canada second with 1.2 h.p. However, it is interesting to note that the per capita installations of British Columbia and Quebec are, respectively, 1.9 h.p. and 1.8 h.p.

## ***Provincial Distribution of Water-Power Resources***

On the Island of Newfoundland and in Nova Scotia and New Brunswick the water-power resources are small in comparison with those of other provinces but topography and run-off conditions favour the development of moderate sized plants at numerous sites within economical transmission distance of the principal cities and towns. A considerable number of the more favourable sites have been developed. In Labrador, recent investigations have proved that the development of Grand Falls on the Hamilton River, one of the largest potential power sites in the world, is quite feasible.

Quebec is the richest of the Canadian provinces in both developed and undeveloped water-power resources and has reserves of undeveloped power sufficient to meet its foreseeable needs for some years to come. Its present installation, approaching 8,500,000 h.p., is more than 45 p.c. of the total for all provinces. The Quebec Hydro-Electric Commission's Beauharnois development on the St. Lawrence River, with a present capacity of 1,408,000 h.p., is to be expanded to a capacity of more than 2,000,000 h.p. The Shipshaw plant of the Aluminum Company of Canada on the Saguenay River is rated at 1,200,000 h.p. On the St. Maurice River, the Shawinigan Water and Power Company operates seven hydro-electric plants with a total capacity of 1,695,000 h.p. and a new plant of 330,000 h.p. is under construction by that Company at Beaumont Rapids.

Ontario has large power resources and ranks second in power production among the provinces. The Hydro-Electric Power Commission of Ontario conducts province-wide operations and is the greatest power producing and distributing organization in Canada. Its largest development, the Sir Adam Beck Generating Stations Nos. 1 and 2 located on the Niagara River at Queenston, is presently rated at 1,820,000 h.p.; however, when the expansion of the No. 2 plant and its associated pumped-storage development is completed in 1958, the total installed capacity will reach 2,522,000 h.p. In addition the Commission purchases nearly 1,000,000 h.p. on contract.

Of the Prairie Provinces, Manitoba has the largest water-power resources, there being great potential on the Saskatchewan, Nelson and Churchill Rivers. The water-power sites so far developed have been confined largely to the Winnipeg River and are used to serve Winnipeg, adjacent municipalities and the transmission network of the Manitoba Power Commission. Approximately 496 cities, towns and villages are served by the Commission's network as well as more than 42,000 of the Province's 50,000 farms. In



Saskatchewan, hydro-electric developments are confined to mining uses in northern areas where water-power resources are abundant. The more settled areas farther south are served by the Saskatchewan Power Corporation which is supplied exclusively by fuel-power plants. In Alberta, the larger hydro-electric developments from which Calgary Power Limited serves much of the southern part of the Province are located on the Bow River and tributaries. The greater part of the Province's water-power resources are located in the northern areas and are rather remote from present centres of population.

British Columbia, with its many fast flowing rivers and its generally high rate of precipitation, ranks second among provinces in water-power resources and is exceeded only by Quebec and Ontario in installed capacity. Its largest development, the 600,000-h.p. Kemano plant of the Aluminum Company of Canada, may ultimately have a capacity of 2,000,000 h.p. Other developments are located chiefly in the southern part of the Province where a number of important sites are still available for development.

In the Yukon and Northwest Territories, there are appreciable amounts of potential power suitable for meeting the requirements of mining areas; however, owing to light precipitation and a long winter season, the favourable sites are limited to those with large storage capacity.

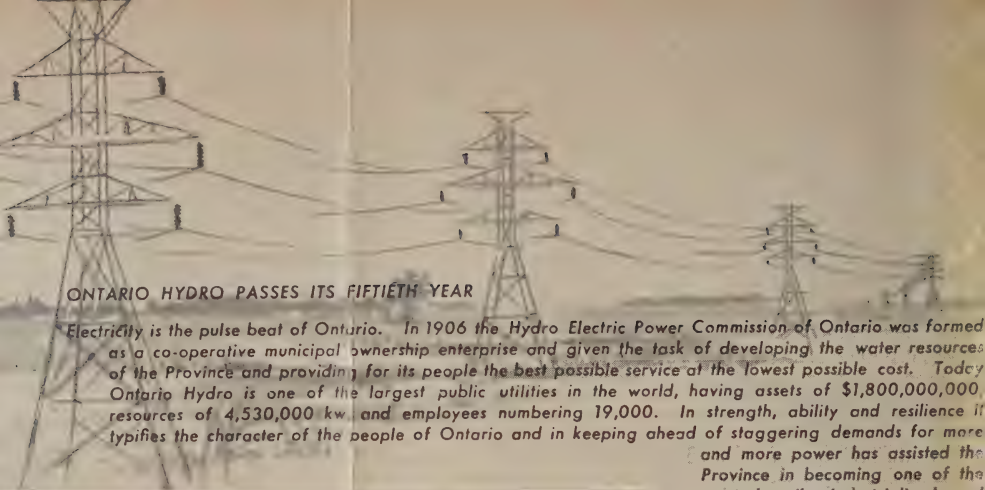
### ***Hydro-Electric Construction During 1956***

The development of the water-power resources of Canada continued at a high rate during 1956 with nearly 900,000 h.p. of new capacity brought into operation and with considerable progress being achieved in the construction of several important developments now under way.

**Quebec.**—The largest single increase in capacity during the year was that of 450,000 h.p. comprising the first three units of stage one of the Quebec Hydro-Electric Commission's Bersimis development; stage one is expected to be completed in 1958 at which time its ten units will have a capacity of about 1,200,000 h.p.; stage two comprises a second plant of five units at 167,000 h.p. each, which is to be constructed at a site located 18 miles

Work begins on a 330,000-h.p. plant at Rapide Beaumont on the St. Maurice River in Quebec. This will be the eighth plant on that River to be placed in operation by the Shawinigan Water and Power Company.





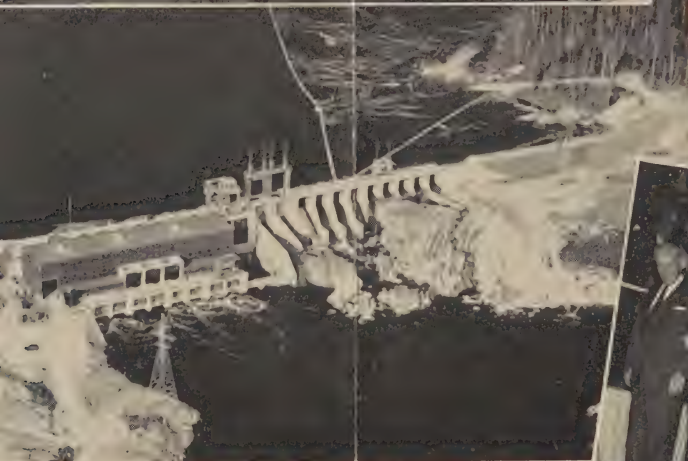
## ONTARIO HYDRO PASSES ITS FIFTIETH YEAR

Electricity is the pulse beat of Ontario. In 1906 the Hydro Electric Power Commission of Ontario was formed as a co-operative municipal ownership enterprise and given the task of developing the water resources of the Province and providing for its people the best possible service at the lowest possible cost. Today Ontario Hydro is one of the largest public utilities in the world, having assets of \$1,800,000,000, resources of 4,530,000 kw. and employees numbering 19,000. In strength, ability and resilience it typifies the character of the people of Ontario and in keeping ahead of staggering demands for more

and more power has assisted the Province in becoming one of the most heavily industrialized and prosperous areas on the Continent.



Ontario Hydro's first power, purchased from a private firm, came from Niagara Falls and the development of Niagara still goes on. Currently under construction are four—the last—generating units. When completed, the Sir Adam Beck Generating Station No. 2 will be producing about 1,828,000 h.p.



The Manitou Falls plant in northwestern Ontario came into operation in 1956, providing power for the mines, the mills and the homes of that area.

Ontario's hydro power plants now under construction will meet the growing needs of the Province only until 1962, beyond which new sources of power must be found. In preparation, Ontario Hydro entered the nuclear power age on Sept. 19, 1956, when the sod was broken for Canada's first experimental nuclear-electric plant.





## ST. LAWRENCE POWER PROJECT TAKES SHAPE

Ontario Hydro and its United States partner are well along with the gigantic task of harnessing the International Rapids Section of the St. Lawrence River, requiring the building of two adjoining powerhouses—one on each side of the International Boundary—and two dams. The powerhouses, of 2,200,000 h.p. capacity, span the channel between the east end of Barnhart Island and the Canadian shore, two miles west of Cornwall.

Men and machines work the clock around at the powerhouse site and each day the structures rise skyward in the de-watered section of the St. Lawrence River. The tallest transmission towers in the country will carry power across the St. Lawrence.

The Long Sault Dam is located upstream from the generating stations and stretches from the upper end of Barnhart Island to the United States mainland. This 2,250-foot dam and the power plant will combine to maintain the head of water required to operate the generators.

Twenty-five miles upstream from the Long Sault is the Iroquois Dam, extending 2,540 feet from Iroquois Point on the Canadian side to Point Rockway on the United States side. It will control the outflow of water from Lake Ontario.







*Laying the world's longest undersea cable which now carries 132,000 volts of electricity from the British Columbia mainland to power-hungry Vancouver Island. This tapping of mainland power removes for many years any ceiling on southern Vancouver Island's industrial expansion.*

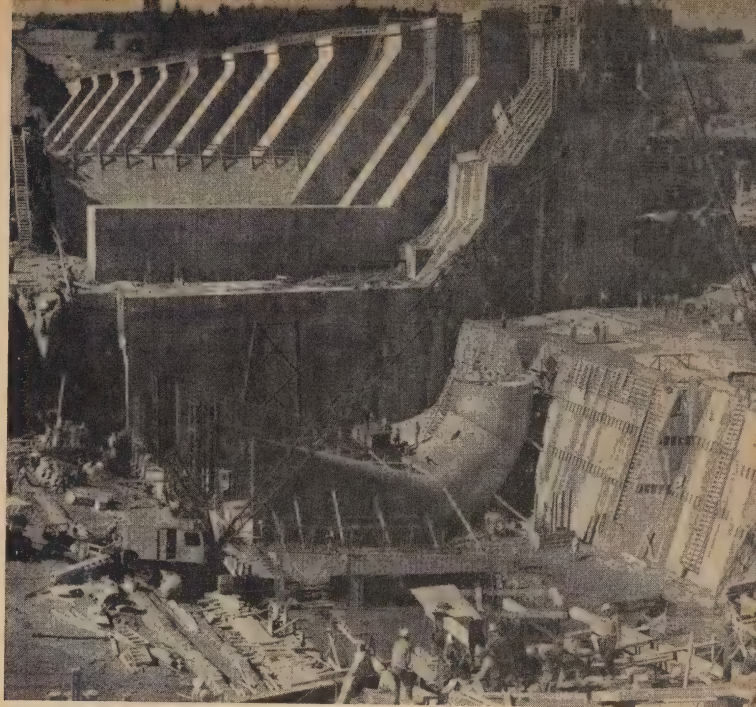
downstream, completion being scheduled for 1959. The Commission is planning to proceed with its Beauharnois No. 3 development of 715,000 h.p. in 11 units, with about one-half of this capacity scheduled for completion in 1958 or 1959. The addition of a third 16,000-h.p. unit at its Rapid II plant on the Ottawa River was completed in 1956.

The Gatineau Power Company installed a new unit of 47,000 h.p. at its Pagan Falls plant on the Gatineau River, bringing the total capacity to 285,000 h.p. Work has commenced by the Shawinigan Water and Power Company on its 330,000 h.p. Rapide Beaumont plant which is scheduled to begin operation in 1958; this will be the eighth plant operated by the Company on the St. Maurice River. Preliminary work is under way by the Aluminum Company of Canada on a new development on the upper Peribonka River where five units at 200,000 h.p. each will be installed in three years.

**British Columbia and Yukon Territory.**—The Aluminum Company of Canada installed a fourth 150,000-h.p. unit at the Kemano powerhouse bringing the plant capacity to 600,000 h.p. A fifth unit of 150,000 h.p. is scheduled for 1957 operation and ultimate capacity is about 2,000,000 h.p. British Columbia Power Commission's development at Ladore Falls on the Campbell River has been placed in service with an initial installation of 70,000 h.p. in two units. Its Whatshan plant on the Lower Arrow Lake has been expanded to 49,500 h.p. by the addition of one unit of 16,500 h.p. The Commission has commenced work on a huge earth-fill dam at its new project located below the outlet of Upper Campbell Lake where a 42,000-h.p. unit will be installed.

The British Columbia Electric Company brought into service its Seton Creek development on the west bank of the Fraser River near Lillooet, with a

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capacity of 58,500 h.p. in one unit. The Company's Cheakamus River development of 190,000 h.p. in two units is scheduled for operation in 1957. Work has commenced on a project to rebuild the Clowhom generating station which includes raising the present dam and expanding the capacity of the plant from 4,000 h.p. to 40,000 h.p. by late 1957. Construction has started on the second and final stage of the Bridge River plant; four units totalling 320,000 h.p. will be added, raising the ultimate capacity of the development to 568,000 h.p.

The North West Power Industries Limited continued investigations and surveys in the upper watershed of the Yukon River towards a water storage and diversion scheme with a potential ultimate capacity of perhaps 4,300,000 h.p. However, preference is now being given to studies on the Nass River in northern British Columbia where the development of some 350,000 h.p. is anticipated. While complex and difficult problems are yet to be resolved with respect to the utilization of such rivers as the Columbia, Kootenay and Fraser, intensive studies are continuing on various schemes with a view to finding acceptable solutions for the development of hydro-electric power.

**Ontario.**—In its new Manitou Falls generating station located on the English River, The Hydro-Electric Power Commission of Ontario placed into service four units totalling 74,000 h.p. with provision made for a fifth unit. Associated with the Commission's Sir Adam Beck development on the Niagara River, construction of the pumped-storage plant was continued and the six reversible units, each having a turbine rating of 45,500 h.p., are scheduled for operation about March 1957. Four additional units, each of 105,000 h.p. capacity, are to be added to the Sir Adam Beck No. 2 station—two in 1957 and two in 1958. At the international rapids site on the



St. Lawrence River, where the work force on the Canadian side is now about 4,100 persons, the project passed the mid-point of its 1954-58 schedule. The pouring of concrete for the base of the powerhouse structure is progressing rapidly and railways, highways and townsites are being relocated. Initial operation of this 1,100,000-h.p. development is scheduled for August 1958.

New hydro-electric power developments planned or under construction by the Commission include extensions to the Alexander and Cameron Falls generating stations on the Nipigon River and the development of sites at Whitedog Falls on the Winnipeg River and at Caribou Falls on the English River. The Great Lakes Power Company is expanding its Upper Falls plant on the Montreal River by raising the height of the dam and installing an additional unit which will add 30,000 h.p. capacity for 1957 operation. The Company is also starting construction of a new 28,000-h.p. plant on the Montreal River located between the Upper and Lower Falls plants, which is expected to commence operation early in 1958.

**Prairie Provinces.**—Northland Utilities Limited completed installation of a 1,000-h.p. additional unit at its Astoria River plant near Jasper, Alta. Calgary Power Limited is continuing work of expanding its Lake Minnewanka-Cascades development by the addition of a second 23,000-h.p. unit; this additional capacity, which is to be used mainly for peak load purposes, is scheduled for operation late in 1957. The Company has also been making surveys at a possible site on the Brazeau River, a tributary of the North Saskatchewan River.

In Manitoba, a 7,000-h.p. development on the Laurie River, 100 miles north of Sherridon, is scheduled for operation in 1957 by Sherritt Gordon Mines Limited. Studies are continuing with respect to possible development of the Province's northern streams. It is expected that the next important hydro-electric project by provincial agencies will be located at Grand Rapids on the Saskatchewan River.

**Atlantic Provinces.**—The New Brunswick Electric Power Commission is proceeding with its Beechwood development on the St. John River with two units of 45,000 h.p. each scheduled for operation in 1957 and with provision being made for a third unit. In Newfoundland, the United Towns Electric Company completed a 5,600-h.p. development on the New Chelsea Brook. The Union Electric Light and Power Company installed a second 2,000-h.p. unit at its plant on the Trinity River. In Labrador, surveys were carried out by the British Newfoundland Corporation towards future development of the large power resources of the Hamilton River.

## **Central Electric Stations**

Central electric stations represent the electric-power industry and are either commercial (privately owned) stations or are publicly owned, that is, operated by federal, provincial or municipal governments. They include both wholesale and retail distribution systems, whether the energy is generated in their own plants or purchased for resale. They are also classified according to the kind of power used—hydraulic or water-driven, fuel or steam, and non-generating or distributing only. In 1955, 95 p.c. of the total output of central electric stations was from hydraulic generation. The total generation of central electric stations since 1939 was as follows:—



	<u>1939</u>	<u>1949</u>	<u>1954</u>	<u>1955</u>
	('000 kwh.)			
Generated by—				
Water power.....	27,829,017	42,779,199	62,572,316	69,478,003
Thermal engines.....	509,013	1,639,374	3,364,124	3,432,589
TOTALS.....	<u>28,338,030</u>	<u>44,418,573</u>	<u>65,936,440</u>	<u>72,910,592</u>

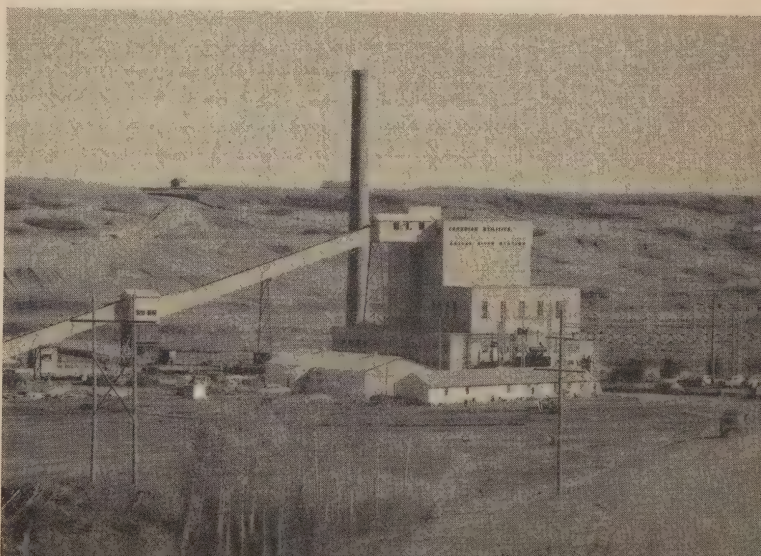
Of the 72,910,592,000 kwh. generated, 4,433,460,000 kwh. were exported to the United States.

Central electric stations provide much of the power for large industries, but some of them generate their own requirements. In 1954, manufacturing industries purchased from central electric stations 34,806,586,000 kwh., but generated for their own use 7,628,365,000 kwh. Of this amount, 4,456,098,000 kwh. were generated by pulp and paper industries and 1,276,848,000 kwh. by smelters and refineries. The primary mining industry purchased 2,731,016,000 kwh. from central electric stations but generated for its own use 398,488,000 kwh.

In 1955 there were 3,645,313 domestic, including rural, customers in Canada compared with 1,623,672 in 1939. During that period the amount of electricity consumed domestically advanced from 2,310,891,000 kwh. to 12,759,657,000 kwh., or from 1,423 kwh. to 3,500 kwh. per customer. The per customer consumption varied widely among the provinces; Manitoba led with 5,420 kwh. while Prince Edward Island and New Brunswick had the lowest averages. Farm customers added during 1955 numbered 30,560 the largest increase being again in the Prairie Provinces. In 1955, Ontario accounted for about 50 p.c. of the total domestic power consumed, though this Province had but one-third of the total population of the country.

Canadians enjoy one of the lowest rates per kilowatt hour in the world. The revenue from domestic consumers averaged 1.66 cents per kwh. in Canada in 1955 as compared with 2.64 cents in the United States and commercial and industrial sales averaged 0.7 cents per kwh. in Canada compared with 1.3 cents in the United States. Annual average bills have registered moderate increases for the past sixteen years. The 1955 average bill for domestic and farm service stood at \$58.03 against \$26.97 for 1939, an increase of 115 p.c., but consumption per customer rose 146 p.c. Provincial bills ranged from \$76.74 for British Columbia to \$45.36 for Quebec.

Water power is becoming more and more important in Canada's energy picture. In some areas, such as the south-central part of Alberta where the coal-fuelled power plant has recently been completed, there are no water sources but coal and gas are plentiful. In other areas, water resources must be supplemented by power.





Unloading herring at Kelly's Cove, N.S. That trim little ocean fish of the northern hemisphere is caught in tremendous numbers off both the Pacific and Atlantic Coasts and is marketed in many forms under many names. Immature herring taken from the Bay of Fundy appear canned as sardines. Mature herring are marketed fresh, frozen or canned, pickled as 'salt' herring, smoked as kippers, bloaters and Digby chicks, filleted and marinated in vinegar as specialty items. West Coast herring are used mainly in the production of high-protein meal and oil.

# Fisheries

FROM the abundant resources of the oceans that wash Canada's coasts and from the resources of the expansive networks of rivers and lakes that occur throughout most of the land, comes an annual harvest which not only places Canada high among the fish-producing nations of the world but also makes it a major source of supply for fish-importing countries. The fisheries constitute an industry of considerable importance to the national economy and, in an even greater degree, to that of many hundreds of communities in the coastal and lake regions. Landings of some 2,000,000,000 lb. each year provide the livelihood of over 62,000 people while many more thousands benefit in varying measure from the contribution fisheries make in the processing, transportation and marketing fields.

Historically, the fisheries have played a unique part in the discovery and early exploitation of the waters of the western world and of the colonization and development of the land. As early as the middle of the fifteenth century, venturesome European fishermen were known to be regular visitors to the waters off Canada's Atlantic Coast, while the early tides of immigration consisted largely of people who obtained their livelihood in whole or in part from the sea. Today these waters continue to be the scene of a great international fishery where Canadian fishermen mingle with those of at least six other nations in tapping one of the greatest reservoirs of sea food known to man.

Canada's Atlantic fishing industry, although well over four centuries old, has a fresh, lively outlook resulting from the reorganization and development that have marked its course in recent years. While traditional methods still form part of this pattern, woven into it are rejuvenating advances in the mechanization of fishing boats, the design and construction of processing plants and in the diversification of production. In the traditional salt cod industry, home-curing, although still an important factor, is being superseded in many places, particularly in Newfoundland, by the establishment of artificial curing and drying plants. This development, together with the remarkable expansion that has taken place throughout the entire Atlantic region in the quick-freezing industry, has been of particular benefit to fishermen in providing them with a ready cash outlet for their landings and in enabling them to devote more of their time to actual catching operations.

In the frozen-fish field, the most significant development continues to be the "fish stick", marketed in block, cooked and uncooked forms, which provides a wider industrial scope for the vast shoals of cod that are the principal marine crop of many coastal areas. Coincidental with the advances in production techniques, a new look has been shaping up in catching methods. More commodious and versatile boats using mechanized types of gear are gradually being introduced to inshore waters and to those a little farther offshore, while a fleet of large, diesel-driven otter trawlers equipped with the latest in navigational and fishing aids has taken over in deepsea waters. As industrial centres expand, they are attracting people from the isolated areas, thus helping to overcome the problems inherent in the small-scale individual mode of fish processing.



Meanwhile, other established Atlantic fisheries continue to be a dominating factor in the livelihood of thousands of fishermen. Paramount among these is the widespread lobster fishery which in terms of value, though not of landings, actually exceeds the codfishery. Other important fisheries include those for haddock, hake, rosefish, halibut, various flatfishes, oysters, herring, sardines (immature herring), mackerel, smelts and clams.

While much of the initiative and resources going into fisheries development in the Atlantic Provinces is provided by private enterprise, a great deal of the leadership and practical assistance is being supplied by the federal and provincial governments. This is reflected in financing plans enabling fishermen to obtain new boats and gear, in industrial development, in harbour improvements, and in research and demonstration in biological and technological fields. Coupled with this are extension and educational services for fishermen.

The picture is decidedly different on Canada's Pacific Coast where the fisheries have for some time enjoyed the status of a highly mechanized, strongly organized industry built primarily around the great salmon runs which are financially the most important of all species in Canada. Other valuable species of this area include halibut which is marketed throughout the year from cold storages, and herring which is utilized in the production of high-quality protein meal and oil. Because of the intensity and efficiency of the Pacific fishing effort and the biological characteristics of certain species, conservation and development programs are of the utmost importance to the industry. Measures developed in this respect have had spectacular success in restoring the huge sockeye salmon runs of the Fraser River and halibut stocks.

Complementing the sea fisheries are those of the inland areas which, though relatively small, are nevertheless of considerable importance to the regions in which they exist. The bulk of the catch consists of lake trout, whitefish and pickerel taken from the Great Lakes, Lake Winnipeg and Great Slave Lake. A drastic decline in the Great Lakes fisheries in recent years, caused by the predacious sea lamprey, has resulted in joint action being taken by the United States and Canada to bring this menace under control and to rehabilitate the fish stocks.

Sole legislative authority in the regulation of the coastal and inland fisheries rests with the Parliament of Canada through the Department of Fisheries. The Department also administers all tidal fisheries (except those of Quebec) and certain non-tidal fisheries. These functions include the conservation and development of the industry to the point of maximum sustained yield and the responsibility for instituting and maintaining standards of quality. Consumer education also forms a valuable part of the Department's work.

The Fisheries Research Board of Canada, a specialized departmental agency under the Minister of Fisheries, is the Department's strong right arm in biological and technological investigations. At field stations located on both coasts and in the inland regions, Board scientists and engineers are continually carrying out projects which have resulted in the accumulation of much new knowledge of populations and characteristics of various species as well as of catching and processing techniques.



West Coast's fishing industry, which provides employment for at least 18,000 people, is, of course, based upon the salmon which accounts for about 70 p.c. of the industry's net value of production. Two-thirds of the catch is canned—a pack of sockeye salmon, the most valuable of the species because of its firm texture and deep colour, amounted to 320,000 cases of 48 lb. each in 1956.



Keenly aware of the value of the fisheries and the need for protecting certain species in the face of intensifying fishing activity, Canada has long taken a foremost part in initiating and administering control measures on international levels. Under the International Pacific Salmon Fisheries Treaty, Canada and the United States have had remarkable success in re-establishing the sockeye runs of the Fraser River and representatives of both Governments agreed, in October 1956, that similar protection is necessary for the future of the pink salmon fishery of the Juan de Fuca-Fraser River area. Outstanding results have also accrued to joint United States-Canadian action in the restoration of the halibut stocks of the North Pacific and the Bering Sea, and in the management of the Pribilof seal herds. Both countries have united in an endeavour to restore the Great Lakes fisheries which involves the formulation of plans for controlling the parasitical sea lamprey.

Since 1950, as a member of the International Commission for the Northwest Atlantic Fisheries, Canada has taken a leading role in the management of the fisheries of the Northwest Atlantic, and in 1951 the United States,

Japan and Canada signed the International Convention for the High Seas Fisheries of the North Pacific Ocean. Canada is also a member of the International Whaling Commission.

Inasmuch as the annual consumption of fish in Canada is relatively low, averaging less than 14 lb. a person, over 90 p.c. of Canada's production goes to other countries, thus giving the industry an added international flavour. Much of the output of frozen and canned fish is marketed in the United States. Other products, such as salted codfish, travel multi-laned trade routes to distant markets in countries of Europe, South America and the West Indies. Thus the fishing industry contributes its share not only to the livelihood and financial status of many Canadians but also to their nutritional well-being and that of other peoples in widely separated parts of the world.

### **Fishery Statistics**

The fishery industry, being dependent upon the vagaries of nature, has its good years and its poor years. Nineteen fifty-five was generally satisfactory. The total catch was over 1,900,000,000 lb. with a value landed of \$90,900,000 and a marketed value of \$181,100,000. However, compared with 1954 this was a decrease of 6 p.c. in quantity landed, of 7 p.c. in value to the fishermen and of 5 p.c. in marketed value. It was an off year for sockeye salmon on the West Coast and the run was even smaller than expected. The herring and halibut runs in British Columbia were also short so that the catch was much below the level of previous years and fishermen's incomes suffered proportionately. Off the coast of Nova Scotia the year was fairly profitable but in Newfoundland the salted cod industry yielded much less than the expected catch. The sardine fishery in the Bay of Fundy was disappointing but lobstermen had excellent fishing and a firm market. The freshwater fishery was a little heavier and a little more valuable than in 1954.

However, Canadian fishermen approached the end of 1956 with the expectation that, for most of them, it would be one of the best of recent years. Landings of the principal species of fish and shellfish, with a few exceptions—



Canada's fish are federally ministered one of the phases of management is co-ordination the maintenance open and seasons and lations govern gear and equipment. He fisheries o talks to a fisherman at in Discovery sage, B.C.



...ing a cod trap  
off the coast of  
Newfoundland.  
While this is the  
most efficient  
method known for  
catching fish, the  
individual's pro-  
duction is limited  
and inshore fish-  
ery is gradually  
giving way to the  
highly capitalized  
mechanized Grand  
bank fishery with  
its supporting  
shore processing  
plants.



notably Pacific salmon and Atlantic herring—exceeded those of the previous year. The markets for fishery products generally were strong in 1956 and average prices paid to fishermen equalled or exceeded comparable 1955 levels in almost every fishery.

### Quantity and Value of Landings of the Chief Commercial Fish, 1953-55

(Newfoundland included)

Kind of Fish	1953		1954		1955 <sup>p</sup>	
	Quantity Landed	Value Landed	Quantity Landed	Value Landed	Quantity Landed	Value Landed
	'000 lb.	\$'000	'000 lb.	\$'000	'000 lb.	\$'000
<b>Atlantic Coast.....</b>	—	<b>46,437</b>	—	<b>50,361</b>	—	<b>50,056</b>
Cod.....	530,597	12,588	639,341	15,990	579,563	14,367
Haddock.....	72,966	3,001	117,989	4,244	135,573	4,325
Halibut.....	4,508	4,976	4,976	1,112	4,446	950
Herring.....	187,507	1,839	184,748	2,001	190,053	1,795
Lobsters.....	46,397	15,718	46,675	15,558	48,568	16,470
Mackerel.....	24,124	1,019	27,664	1,045	28,118	1,072
Rosefish.....	46,545	1,055	48,739	1,106	43,980	1,015
Salmon.....	4,713	1,357	3,955	1,280	2,644	892
Swordfish.....	3,324	1,105	4,304	1,139	4,546	1,090
Other.....	—	3,779	—	6,886	—	8,080
<b>Pacific Coast.....</b>	—	<b>31,280</b>	—	<b>34,458</b>	—	<b>27,711</b>
Halibut.....	24,882	3,661	25,199	3,984	19,679	2,555
Herring.....	298,241	3,678	360,962	4,565	305,692	4,187
Salmon.....	186,914	21,848	178,862	23,579	131,008	18,481
Other.....	—	2,093	—	2,330	—	2,488
<b>Inland.....</b>	—	<b>12,115</b>	—	<b>12,723</b>	—	<b>13,124</b>
Pickarel (blue).....	10,399	1,041	8,210	1,231	12,070	1,448
Pickarel (yellow).....	15,974	2,540	16,759	2,667	19,737	3,093
Whitefish.....	25,571	4,352	24,577	4,425	21,990	3,726
Other.....	—	4,182	—	4,400	—	4,857
<b>Totals, Canada.....</b>	—	<b>89,832</b>	—	<b>97,542</b>	—	<b>90,891</b>



Fisherman on Ne-  
Lake in north  
Saskatchewan  
packs trays w  
fresh fish in p  
paration for  
air haul to  
Rouge where it  
filleted and f  
frozen.

### Landings and Values of All Fishery Products, by Province, 1953-55

Province or Territory	Quantities Landed			Value of Products		
	1953	1954	1955 <sup>p</sup>	1953	1954	1955 <sup>p</sup>
	'000 lb.	'000 lb.	'000 lb.	\$'000	\$'000	\$'000
Newfoundland.....	502,085	607,413	553,200	24,000 <sup>1</sup>	28,000 <sup>1</sup>	25,000 <sup>1</sup>
Prince Edward Island.....	31,854	34,627	31,431	4,049	3,922	3,841
Nova Scotia.....	367,583	396,511	425,902	40,012	44,079	47,093
New Brunswick.....	197,206	213,294	168,540	17,523	22,161	20,420
Quebec.....	113,162	92,545	129,435	5,804	5,002	6,675
Ontario.....	44,836	47,680	45,634	7,916	7,889	7,631
Manitoba.....	23,359	28,445	34,936	4,784	5,279	6,147
Saskatchewan.....	8,481	10,524	10,152	1,281	1,644	1,617
Alberta.....	10,839	8,765	8,731	1,086	1,141	1,144
British Columbia.....	542,279	602,270	498,376	66,260	69,351	60,032
Northwest Territories.....	6,719	7,021	7,827	1,512	2,040	1,529
<b>Totals.....</b>	<b>1,848,403</b>	<b>2,049,095</b>	<b>1,914,164</b>	<b>174,227</b>	<b>190,508</b>	<b>181,129</b>

<sup>1</sup> Estimated.

### Principal Statistics of the Fish-Processing Industry, 1950-55

Year	Estab- lishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost of Materials Used	Selling Value of Products
	No.	No.	\$'000	\$'000	\$'000	\$'000
1950 <sup>1</sup> .....	591	14,861	18,722	1,773	79,959	128,424
1951.....	639	18,706	24,744	2,724	101,621	163,010
1952.....	635	17,551	24,426	2,533	86,458	134,725
1953.....	598	13,731	23,092	2,410	85,908	137,310
1954.....	586	14,202	26,001	2,605	95,633	153,457
1955 <sup>p</sup> .....	574	14,626	26,320	2,663	101,921	159,888

<sup>1</sup> Exclusive of Newfoundland.



*Important as the commercial fisheries are, there are other types of fishing for which Canadian waters are famous. There is hardly a lake, river or stream that is in any way accessible which does not give its share of enjoyment to the leisure-time fisherman.*

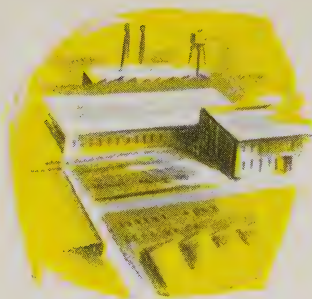




George Hunt

*A converter aisle in The International Nickel Company's Copper Cliff smelter where copper-nickel matte for reverberatory furnaces is blown to produce blister copper.*

# Industrial Development



## Manufactures

CANADA is now one of the world's leading manufacturers, probably the sixth largest. United Nations statistics show that in 1954 the manufacturing component of Canada's national income was of greater value than that of Italy or Japan, for instance. Canada derived 29 p.c. of her national income from manufacturing in 1954, indicating that the country was about as industrialized as the United States, which derived 30 p.c. of its national income from that source.

In 1954 Canada was the world's fourth commodity trader, being out-ranked by the United States, the United Kingdom and West Germany. This high position as a trader is both reflected in the industrial structure and derived from it. For instance, several of the major industries based on Canada's natural resources, such as pulp and paper mills and non-ferrous metal smelters, are dependent on world markets for a large part of their sales. One of them, the aluminum industry, developed in Canada because of the availability of abundant supplies of low-cost hydro power, depends on the outside world for both raw material and a market.

However, Canada's rapidly growing population is providing a greater market for more industrial produce. Manufacturers of groceries, meat products, lumber and automobiles, for example, must produce larger quantities of goods to feed, house and otherwise maintain the population. Mineral and forest industries, transport systems and service trades are all expanding and in so doing require more building materials, machinery and equipment and other supplies. Every new factory also means an increased market for capital goods and for raw materials or semi-finished products. The result is that manufacturing industry grows in two different ways. The variety of products increases because markets for new products grow until they are big enough to support domestic production. At the same time the markets for existing Canadian products expand, calling for increased output.

The following table shows the long-term growth in Canadian manufacturing. These figures are reasonably comparable but, since they cover so long a period, allowances should be made for certain changes in information collected and in treatment of the data. In particular, in 1952 the collection

of data on "gross value of production" was replaced by "value of factory shipments". The former included all goods produced during the year irrespective of whether they were shipped from the factory during that year. The latter includes all goods leaving the plant during the year regardless of when produced. The difference is not great since most goods are shipped during the year in which they are manufactured.

Gross values of production or shipments represent more than the actual contribution of the industry to the economy. They give the value of goods leaving the industry and therefore include all the work put into them at earlier stages of production. For instance, the value of shipments from a clothing factory covers not only the value of the work done by that factory but also the work done by the people who produced the raw cotton, the shippers who brought it to Canada, the spinning mills that turned it into yarn and the weaving plants that made the cloth purchased by the clothing factory. Thus, by deducting the cost of materials and the cost of fuel and electricity purchased from the gross value a net figure is obtained that gives a truer picture of the contribution to the nation's economy by the factories concerned. It still includes, however, items contributed by such firms as insurance companies, advertising agencies and some transportation expenses. From 1954 on, adjustment is made for the change in inventories of products held at the plants when calculating net value added.

### Summary Statistics of Manufactures, 1870-1955

Year	Estab- lish- ments	Employees	Salaries and Wages	Cost of Materials	Net Value Added by Manufacture <sup>1</sup>	Gross Value of Products <sup>2</sup>
	No.	No.	\$'000	\$'000	\$'000	\$'000
1870 <sup>3</sup> .....	41,259	187,942	40,851	124,908	96,710	221,618
1880 <sup>3</sup> .....	49,722	254,935	59,429	179,919	129,757	309,676
1890 <sup>3</sup> .....	75,964	369,595	100,415	250,759	219,089	469,848
1900 <sup>4</sup> .....	14,650	339,173	113,249	266,528	214,526	481,053
1910 <sup>4</sup> .....	19,218	515,230	241,008	601,509	564,467	1,165,976
1917 <sup>5</sup> .....	21,845	606,523	497,802	1,539,679	1,281,132	2,820,811
1920 <sup>6</sup> .....	22,532	598,893	717,494	2,085,272	1,621,273	3,706,545
1929.....	22,216	666,531	777,291	2,029,671	1,755,387	3,883,446
1933.....	23,780	468,658	436,248	967,789	919,671	1,954,076
1939.....	24,805	658,114	737,811	1,836,159	1,531,052	3,474,784
1940.....	25,513	762,244	920,873	2,449,722	1,942,471	4,529,173
1943.....	27,652	1,241,068	1,987,292	4,690,493	3,816,414	8,732,861
1945.....	29,050	1,119,372	1,845,773	4,473,669	3,564,316	8,250,369
1946.....	31,249	1,058,156	1,740,687	4,358,235	3,467,005	8,035,692
1947.....	32,734	1,131,750	2,085,926	5,534,280	4,292,056	10,081,027
1948.....	33,420	1,155,721	2,409,368	6,632,882	4,938,787	11,875,170
1949 <sup>6</sup> .....	35,792	1,171,207	2,591,891	6,843,231	5,330,566	12,479,593
1950.....	35,942	1,183,297	2,771,267	7,538,531	5,942,058	13,817,526
1951.....	37,021	1,258,375	3,276,281	9,074,526	6,940,947	16,392,187
1952.....	37,929	1,288,382	3,637,620	9,146,172	7,443,534	16,982,687
1953.....	38,107	1,327,451	3,957,018	9,380,559	7,993,069	17,785,417
1954.....	38,028	1,267,966	3,896,688	9,241,858	7,902,124	17,554,528
1955 <sup>6</sup> .....	—	1,289,978	4,110,720	10,298,186	8,708,584	19,469,013

<sup>1</sup> Gross value less cost of materials 1870-1928; gross value less cost of materials, fuel and electricity 1929-55. <sup>2</sup> Value of factory shipments from 1952 on (see text above).

<sup>3</sup> Includes all establishments irrespective of number of employees, including house building and custom and repair work. <sup>4</sup> Includes all establishments employing five hands or over.

<sup>5</sup> Includes all establishments irrespective of number of employees, but excludes construction and custom and repair work. <sup>6</sup> Newfoundland included from 1949.



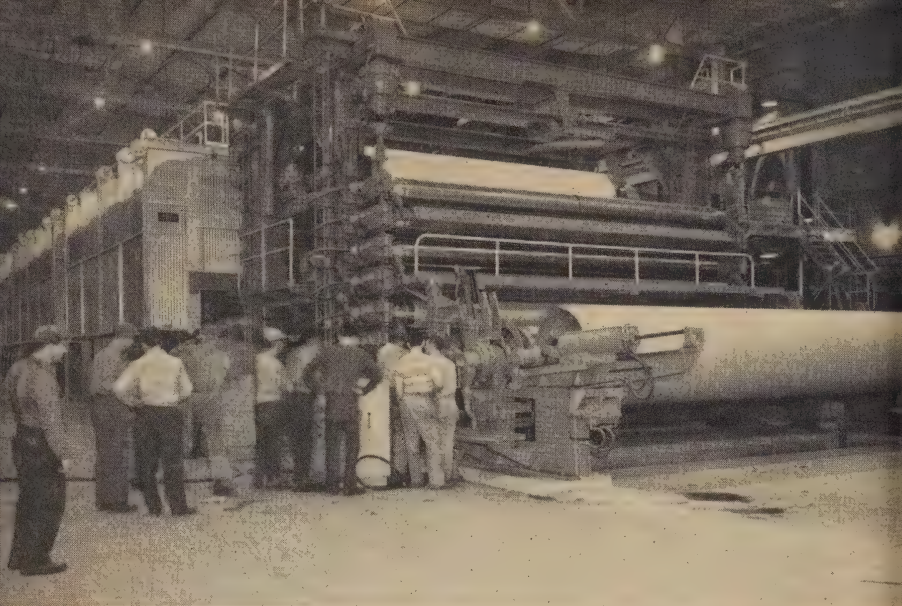
These statistics show a fairly steady long-term growth both in employees and value of production, although increased prices were partly responsible for the latter. The index of the volume of manufacturing production, indicates that production has been rising faster than employment since 1946. In that year the index was 189.9 compared with an average of 100.0 for the years 1935 to 1939; by 1954, it was 251.4 and in 1955 it was 270.1. Thus the increase was about 42 p.c. from 1946 to 1955 as compared with an advance of about 22 p.c. in employment in manufacturing.

The following table gives principal statistics for 1954 of the fifteen industries with the largest values of factory shipments. Though hundreds of new commodities have been added to the list of Canada's manufactures in the past decade, much the same group of industries hold the lead, although their positions are in some instances changed. Petroleum products, butter and cheese and food preparations improved their positions in 1954 as compared with 1953 and miscellaneous electrical apparatus and printing and publishing moved into the top fifteen group at the expense of motor vehicle parts and men's factory clothing.

### *Principal Statistics of the Fifteen Leading Industries, 1954*

Industry	Estab- lish- ments	Em- ployees	Salaries and Wages	Cost of Materials Used	Value Added by Manu- facture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000
Pulp and paper.....	125	60,837	252,598	515,258	641,410	1,241,558
Non - ferrous metal smelting and refining.	22	26,048	102,596	515,316	352,038	922,579
Petroleum products....	61	12,476	52,316	568,542	309,795	909,253
Slaughtering and meat packing.....	154	22,999	78,699	674,152	157,684	837,508
Motor vehicles.....	20	27,949	106,062	477,309	176,473	666,287
Sawmills.....	7,696	57,010	139,572	301,118	263,629	572,186
Butter and cheese.....	1,467	20,599	55,022	304,836	99,404	412,205
Primary iron and steel.	51	28,861	108,817	145,110	217,487	383,154
Aircraft and parts.....	47	35,095	135,863	158,893	181,382	343,011
Miscellaneous food pre- parations.....	333	10,131	28,462	213,195	90,418	306,451
Railway rolling-stock..	36	29,214	96,862	162,220	116,736	283,399
Bread and other bakery products.....	2,584	33,883	83,805	131,120	139,859	280,208
Miscellaneous electrical apparatus and supplies	157	23,624	82,253	123,156	145,639	267,574
Rubber goods (includ- ing footwear).....	73	20,894	67,476	106,502	149,074	264,185
Printing and publishing	800	29,401	100,475	71,647	182,854	256,700
<b>Totals, Fifteen Lead- ing Industries.....</b>	<b>13,626</b>	<b>439,021</b>	<b>1,490,878</b>	<b>4,468,374</b>	<b>3,223,882</b>	<b>7,946,258</b>
Percentages of fifteen leading industries to all industries 1954...	35.83	34.62	38.26	48.35	40.80	45.27

The value added by these industries does not necessarily vary in the same way as the value of shipments. The butter and cheese industry, for instance, added much less to the value of its products than seven of the industries which ranked lower according to their value of shipments. This was due to the large quantity of milk resold after pasteurizing and bottling, which are not very expensive processes. Sawmills, because they buy mainly wood as a raw material, added considerably more value than either the motor



*The running speeds of paper machines are being constantly advanced as demand for their product increases. This 276-inch machine, which went into operation at La Tuque, Que., in 1956, has a kraft speed of 1,750 feet a minute and a newsprint speed of 2,500 feet a minute.*

vehicle industry or the slaughtering and meat packing industry, both of which had higher sales. Automobile manufacturers buy many fabricated parts and even complete assemblies. The meat packers buy farm animals and one plant may buy intermediate products from another. Containers and other packaging materials are also purchased. The number of employees also varies in a different manner from sales. Bakeries, for instance, had one employee for every \$8,270 of sales, whereas the petroleum products industry had only one for every \$72,880.

The production of pulp and paper has been the leading Canadian industry for many years. Fed by the great coniferous forests, and no less dependent on the power from the rivers, this industry produces goods valued well above those of any other. Of the 9,673,000 tons of wood pulp produced in 1954, 7,493,000 tons were used in Canada. This pulp, together with a small amount of imported pulp and some 470,000 tons of waste paper, straw and rags, made about 7,650,000 tons of paper. Output of newsprint at 6,001,000 tons was about five times higher than that of any other country. Of the newsprint production 5,522,000 tons were exported. By value, about three-quarters of the total production of the industry was exported either as pulp or as paper.

The importance to this industry of cheap power is emphasized by the fact that in 1953 it used about 36 p.c. of the electricity used by all manufacturing industries. Its consumption was about 14,715,000,000 kwh., of which 4,273,000,000 kwh. were generated by its own power plants. All manufacturing plants in Canada together used 40,928,000,000 kwh., of which they generated 6,901,000,000 kwh.

The sawmills, which ranked sixth in value of shipments, also depend on the forests for their raw materials and on world markets for a great part of

their sales. Their main product is, of course, lumber which accounted for 84 p.c. of the value of shipments but shingles and railway ties are also of importance. Most of the lumber was sawn in British Columbia, Quebec and Ontario following far behind. There are a large number of relatively small operators in this industry and they employ almost as many men as the pulp and paper mills but require less skilled help so that their wage bill is much lower. Exports of commodities produced by sawmills totalled \$359,000,000 in 1954, equivalent to 63 p.c. of total shipments. Imports of such commodities totalled about \$21,000,000.

The non-ferrous metal smelting and refining industry, Canada's second largest, is based on mineral deposits but is also a heavy user of electric power. Because of the availability of that power, most of the non-ferrous ores mined in Canada are processed within the country and for the same reason huge aluminum smelters operate in Quebec and British Columbia using imported ores and concentrates. Canada is a leading producer of metals, standing first in the production of nickel, second in aluminum and zinc and fourth in copper. Total shipments of the smelting and refining industry in 1954 amounted to \$933,000,000. Exports of aluminum, copper ingots, bars and billets, pig lead, nickel in various forms, platinum, silver bullion and zinc spelter alone amounted to about \$546,000,000, or 59 p.c. of the total.

The petroleum products industry advanced from fifth place in 1953 to third in 1954, with sales increasing from \$695,000,000 to \$909,000,000. In the later year the industry used 6,000,000,000 gal. of crude oil, 54.5 p.c. of which was from Canadian wells. In that year the use of Canadian crude exceeded that of imported crude for the first time.

Of particular interest in considering the tremendous expansion of this industry is a special study recently made which shows that the net amount of

*Population growth and higher personal incomes have been largely responsible for the doubling of the dollar sales of processed foods in this country since 1945, but equally important has been the steady up-grading in the quality of foods offered on the domestic market.*





energy used in Canada doubled from 1926 to 1952, and that per capita use increased by a little over 30 p.c. in that period. Liquid petroleum fuels made up about 9 p.c. of the net consumption of energy in 1926 and about 38 p.c. in 1952. Of Canada's requirements of gasoline and naphtha, 90 p.c. were met from her own refineries in 1952 and for fuel oils the equivalent figure was 76 p.c.

The pattern of energy consumption by the manufacturing industry has changed considerably during the past twenty years, as shown by the following percentage distribution of the uses of various fuels by manufacturers other than those producing fuel.

	1933	1939	1953		1933	1939	1953
	p.c.	p.c.	p.c.		p.c.	p.c.	p.c.
Coal.....	55.9	54.1	47.8	Fuelwood and wood			
Coal products.....	4.6	7.8	4.8	waste usable as			
Natural gas.....	1.4	1.6	2.6	fuel.....	6.1	3.5	1.0
Petroleum products...	11.1	8.7	20.5	Electricity.....	20.9	24.3	23.3

Three industries based on agriculture are among the first fifteen—slaughtering and meat packing, butter and cheese, and bread and other bakery products. The slaughtering and meat packing industry came fourth in value of shipments, but was ninth in terms of value added. In 1954 the industry slaughtered over 8,000,000 animals valued at \$520,000,000 and purchased some \$74,000,000 worth of dressed meat and poultry. A striking feature of the meat packing industry in recent years is the continued ability of Canada to consume substantially increased production of meats and the consequent decline of exports, especially of beef. Per capita consumption of beef in 1954 was 72 lb. and of pork 54 lb. The total value of exports in that year was only \$69,000,000, a situation which a few years ago would have been considered unbelievable. Also more and more meats are being prepared in branded, consumer-size packages in the packing house. Shipments were valued at \$838,000,000 in 1954.

The butter and cheese industry is also now producing almost entirely for the Canadian market. It was seventh in terms of value of shipments, but only twenty-fourth in terms of value added. Total shipments in 1954 amounted to \$412,000,000, of which \$150,000,000 was for milk and cream sold as such. Exports of butter and cheese were valued at about \$1,600,000.

The bread and bakery products industry came twelfth on the list with sales of \$280,000,000 all in the home market—of these sales \$173,000,000 were bread. Canadians used about 100.5 lb. of bread per person in 1954, 5 lb. less than for the previous two years.

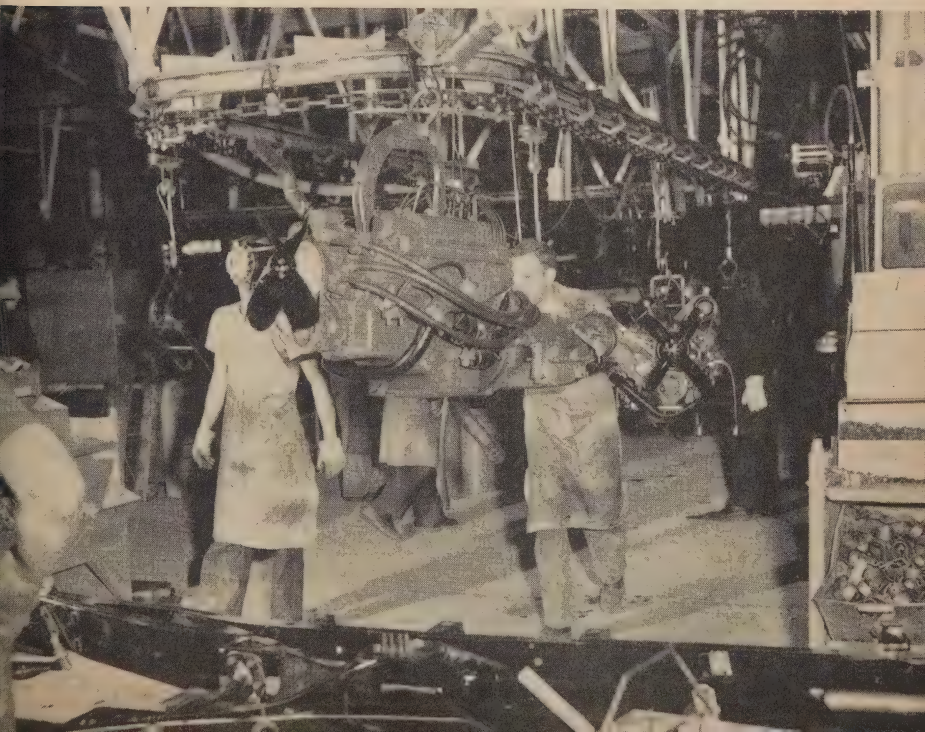
The miscellaneous food preparations industry was the tenth in terms of value of shipments but because of the high proportional cost of materials used and because a large part of the industry's activity consists of blending and packaging it was well down on the list in value added. For instance roasted coffee which sold for \$78,000,000 was bought as green beans for \$69,000,000, and blended and packaged tea which sold for \$47,000,000 was purchased in bulk for \$30,000,000. These two items made up over one-third of the industry's sales of \$306,000,000 and accounted for nearly half of the materials purchased. For these, and many other items, the industry relied on imports for its supplies but its market was almost entirely within Canada.

The motor vehicle industry ranked fifth in 1954, as against third in 1953. The main items shipped were about 287,200 passenger cars valued at \$437,000,000, about 69,500 trucks valued at \$118,000,000, about 400 buses valued at approximately \$5,000,000 and repair parts and accessories to the value of \$34,000,000. Total shipments came to \$666,000,000. The cost of materials purchased was about \$477,000,000, which means that over two-thirds of the value of sales represented work done by manufacturers in other industries. The automobile industry, concentrated in southern Ontario, uses thousands of commodities produced by other industries operating all across the country. Of the vehicles shipped, about 19,700 passenger cars worth \$13,000,000 were exported (including 12,300 chassis without bodies), together with 10,200 trucks worth over \$7,000,000; about 38,500 cars, 4,700 trucks and 300 buses valued at \$76,000,000 were imported. Thus there were 370,500 new motor vehicles available for use in Canada in 1954, 158,200 of which were offset by vehicles going out of use. There was one passenger car for every 5.7 persons in the country and one motor vehicle for every 4.2 persons. In Ontario there was one passenger car for every 4.2 persons and one motor vehicle for every 3.2 persons.

The primary iron and steel industry, which ranked eighth is dominated by four integrated plants, two at Hamilton and one at Sault Ste. Marie in Ontario, and one at Sydney, N.S. There are also other steel plants across the country which buy pig iron and scrap to feed their furnaces. The industry uses a good deal of Canadian ore and coke from Canadian coal but imported ore is mainly used, partly because some plants can ship ore more conveniently

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*Workmen readying an engine for placement on a car chassis. After the addition of such parts as the starter, carburetor and generator, the engine, by use of suspension conveyor, is mounted on the chassis. The propellor shaft, tail pipe and muffler assembly are added after the engine is installed.*



from United States mines and partly because a blast furnace requires a mix of different types of ores and therefore must draw on varied sources. The industry's sales of rolling-mill products amounted to \$301,000,000 and of steel castings \$34,000,000. Only \$1,000,000 worth of the steel ingots produced were sold as such, almost all of them being further processed. Over a fifth of the pig iron produced was sold for \$22,000,000 and other products brought the total to \$383,000,000.

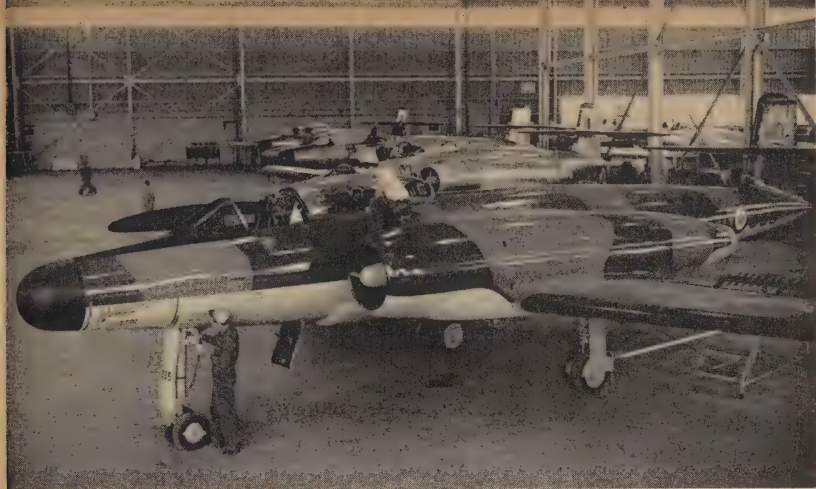
The aircraft and parts industry, a comparative newcomer among the leaders, was greatly expanded to meet the increased defence requirements which followed the war in Korea but, in addition to its output of military aircraft, several types of civil aircraft have been specially developed to operate under Canadian conditions. As recently as 1950 production amounted to only \$55,000,000 but in 1954 the industry produced \$65,000,000 worth of parts alone. It put \$145,000,000 of work into the production of aircraft, did other work including engine production and aircraft development to the value of \$102,000,000, and did \$31,000,000 worth of repairs. The total value of production was thus \$343,000,000. The industry used \$109,000,000 worth of aircraft and engine parts both in manufacturing and servicing. Exports of Canadian aircraft and parts were valued at \$28,000,000, and imports of aircraft and engines totalled \$26,000,000.

The main items produced in 1954 by the railway rolling-stock industry, eleventh on the list, were 244 diesel electric locomotives valued at \$41,000,000, 4,490 box cars at \$30,000,000, 253 passenger cars at \$29,000,000, and various types of freight cars to a total of \$30,000,000. Total output was valued at \$283,000,000 and exports at over \$8,000,000.

The miscellaneous electrical apparatus and supplies industry, having shipments of \$268,000,000 in 1954, appeared among the fifteen leading industries for the first time in that year. This industry, whose main products are electric wire and cables, electric light bulbs and fluorescent tubes, is only one of the electrical industries showing extremely rapid growth in recent years—the radio and radio parts industry had an output of \$229,000,000 in 1954, the heavy electrical machinery industry of \$202,000,000, the refrigerators, vacuum cleaners and appliances industry of \$130,000,000 and the batteries industry of \$35,000,000. Other industries also produce wire and cables and electric light bulbs and tubes and the total output of these commodities in 1954 amounted to \$123,000,000 and \$20,000,000, respectively.

The rubber products industry, fourteenth among the industries, sells almost all its products on the home market. It relies heavily on activity in the transport field, since over half its sales consist of tires and tubes. It was at one time completely dependent on imports for two basic raw materials, rubber and the cottons from which its tire fabrics were woven, but the development of synthetic rubber and synthetic fibres have changed that picture. In 1954 the natural product made up 49 p.c. of the rubber used, synthetic rubber 36 p.c. and reclaimed rubber 15 p.c. By 1955 the process had gone further, only 45 p.c. of the rubber used being natural and 40 p.c. synthetic. Of the tire fabrics costing \$25,000,000 in 1954, \$19,000,000 was for rayon fabrics, \$3,000,000 for cotton and \$3,000,000 for nylon and other fabrics. Of total sales valued at \$264,000,000, tires accounted for \$131,000,000, tubes for \$10,000,000 and rubber footwear for \$30,000,000.

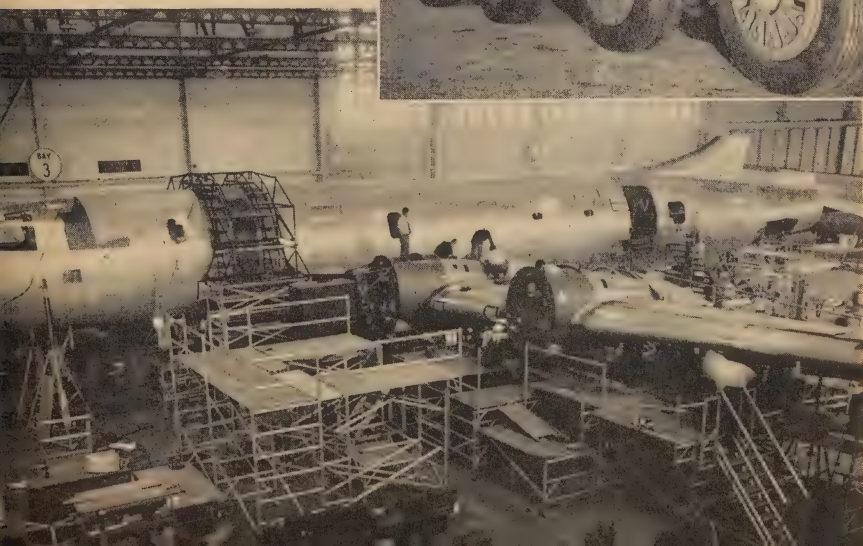
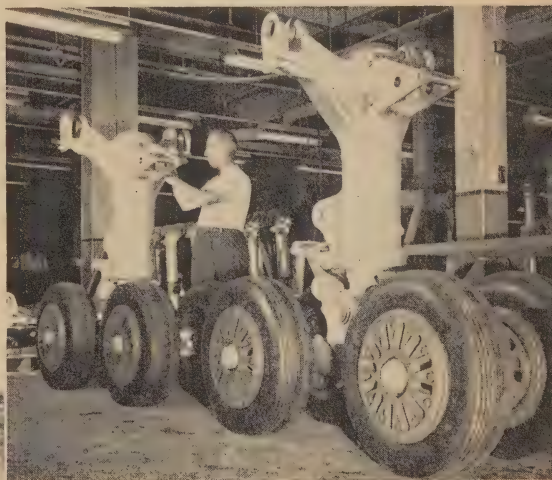




*Camouflaging CF-100's for duty with NATO. Four squadrons of these aircraft, built at Malton, Ont., will serve in Europe as day and night long-range interceptors. The first squadron was posted in France in November 1956.*

*Under current production at Canadair is the CL-28, largest aircraft yet built in Canada. It is designed for defence use as a long-range submarine hunter and attacker and as a cargo and personnel carrier.*

*Port and starboard wheels for the CL-28. Hydraulic units are built under sub-contract.*

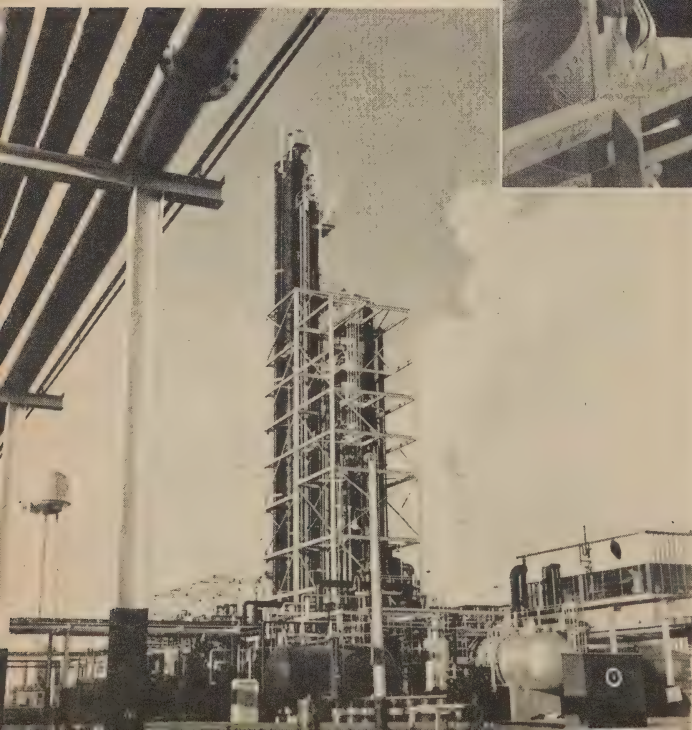


The printing and publishing industry, fifteenth in terms of gross value of shipments, was sixth in terms of value added. The most important expenditure on materials was \$50,000,000 for newsprint. More was paid out for wages than for material. Sales totalled \$257,000,000 and daily newspapers provided \$158,000,000 of that total, of which \$116,000,000 was from sales of advertising space and \$42,000,000 from sales of newspapers.

## Provincial Distribution

The provinces of Canada vary considerably in the quantity and type of their manufacturing activities. *Ontario* is Canada's most industrialized province. In 1954 its industries produced almost half of the nation's manufactured goods, provided nearly half of the employment in manufacturing, and paid just over half of the salary and wage bill. Its production is more diverse than that of any other province and certain industries are carried on there almost exclusively. Industries in which Ontario provided 90 p.c.

*The steady upward movement in the production of chemicals and allied products, unbroken for more than a decade, continued throughout 1956. The increase was most pronounced in primary plastics, pharmaceutical preparations and other chemicals directed toward the consumer market.*



*The fractionating column at an Edmonton polythene plant is where ethylene gas undergoes final purification before going forward for polythene manufacture. At the end of the process polythene resin is packed in 50-lb. bags.*



Montreal couturière creates in Canadian nylon.



or more of the shipments in 1954 were as follows: the motor vehicles, motor vehicle parts, heavy electrical machinery, agricultural implements, machine tools, bicycles and parts, tobacco processing and packing, and miscellaneous non-ferrous metal products industries. A great many other industries are dominated by Ontario's production. All the passenger cars and most of the commercial vehicles produced in Canada come from Ontario, partly because the concentration of population in Ontario and Quebec provides the greatest market and partly because of proximity to United States automobile centres which were originally the source of components. Next in importance in Ontario were non-ferrous metal smelting and refining with shipments of \$403,000,000 in 1954, and pulp and paper with \$365,000,000. These two industries accounted for 42 p.c. of the electricity used by all Ontario manufacturers. Slaughtering and meat packing followed, high among Ontario's manufactures as in most provinces. Three of Canada's four major primary iron and steel producers are located in the Province. A large market for steel is provided by the industrial areas of Ontario and Quebec, within easy reach of the plants.

*Quebec*, which shipped about 30 p.c. of Canada's manufacturing output in 1954, is the second largest industrial province. Great forest, water power, mineral and agricultural resources contributed materially to this development. The leading industry was pulp and paper, which shipped products to the value of \$532,000,000 in 1954, almost 10 p.c. of the provincial total, and the non-ferrous metal smelting and refining industry which shipped \$386,000,000 worth of products, 7 p.c. of the total. Of all the electricity used by Canadian manufacturers in 1954, 55 p.c. was used in Quebec and of Quebec's power consumption 83 p.c. was used by these two leading industries. The large and expanding aluminum smelters, the raw materials for which are imported and the products of which are mainly exported, located in Quebec primarily to take advantage of the availability of low-cost power.



Although Canada's ten to fifteen leading industries have expanded sufficiently during the past decade to retain about the same proportion of the value of all manufacturing output, hundreds of new items have been added to the list of commodities produced. In large plants and small ones, everything from pipe to pickles is turned out to satisfy the demands created by a growing population with higher incomes and a steadily advancing standard of living.



The third and fourth industries were petroleum products and slaughtering and meat packing, which shipped products to the value of \$311,000,000 and \$173,000,000, respectively. These were followed by the women's clothing industry and two other textile industries—men's clothing and cotton yarn and cloth—and the tobacco, cigars and cigarettes industry. Quebec predominates in the Canadian output of the pulp and paper, textile, clothing and tobacco industries as well as the leather footwear, railway rolling-stock and miscellaneous electrical appliances industries.

*British Columbia* ranks third among the provinces in manufacturing production. Its output, which was valued at \$1,474,000,000 in 1954 and made up 8.4 p.c. of the Canadian total, is based largely on forest and mineral resources. The sawmilling industry ranked first in 1954 with shipments of \$348,000,000 and pulp and paper second with \$158,000,000. *British Columbia* holds the dominant position among the provinces in the production of wood products, its output making up 40 p.c. of Canada's total. The completion of the oil pipeline bringing Alberta crude oil to west coast refineries advanced the Province's output of petroleum products from seventh place in 1953 to third in 1954. The Province is also one of Canada's greatest producers of fishery products, shipping \$71,000,000's worth in 1954 which was 46 p.c. of the Canadian total. Non-ferrous metal smelting and refining—of base metals in the south and of aluminum in the north—is of considerable importance.

The three *Prairie Provinces* together reported shipments of \$1,427,000,000 in 1954, 8.1 p.c. of Canada's total. Alberta with \$575,000,000 took the lead for the first time in that year in place of Manitoba with \$571,000,000.





Saskatchewan's output was valued at \$281,000,000. Taking these provinces together, slaughtering and meat packing had the largest value of shipments in 1954, amounting to \$267,000,000, followed by petroleum products with \$213,000,000, flour mills with \$96,000,000, butter and cheese factories with \$91,000,000 and the railway rolling-stock industry with \$45,000,000. These five contributed nearly half of the total factory shipments. *Alberta* moved rapidly ahead in recent years as a result of the establishment of many refineries and chemical industries based on the production of the oil and gas fields. However, slaughtering and meat packing remained in first place in 1954 by a narrow margin, having shipments of \$122,000,000 as compared with \$102,000,000 for petroleum products. Third came butter and cheese factories with shipments of \$36,000,000 followed by flour mills, sawmills, sash, door and planing mills, bakeries, railway rolling-stock, breweries, and printers and publishers. In *Manitoba* the slaughtering and meat packing industry led by a wide margin, its shipments of \$114,000,000 comparing with \$35,000,000 for the petroleum products industry which came second, \$31,000,000 for railway rolling-stock which came third. Butter and cheese, flour production and miscellaneous food preparations were also of importance in this Province as well as factory clothing. *Manitoba* has a greater diversity of manufacturing output than the other Prairie Provinces, a great many small and medium sized industries having established in the Winnipeg area in recent years. *Saskatchewan's* manufacturing industry is dominated by the petroleum products industry with shipments of \$76,000,000 and industries based on agriculture—flour mills with \$43,000,000, slaughtering and meat packing with \$31,000,000 and butter and cheese with \$28,000,000.





Manufactures in the *Atlantic Provinces* are based mainly on the forests, the sea and the mines. Considering the four provinces as a unit, pulp and paper, fish processing, sawmills and primary iron and steel predominated, followed by two heavy users of steel, the shipbuilding and repairs industry and the railway rolling-stock industry. These industries accounted for over half the total shipments of \$720,000,000 for the area. In *Nova Scotia*, which shipped \$300,000,000's worth of products, fish processing was the major item with an output of \$41,000,000, followed by the primary iron and steel industry with \$32,000,000. This industry is established near the coal mines of Cape Breton and benefits from easy access by sea to the iron ore of Newfoundland. Among the important steel using industries, shipbuilding reported shipments of \$22,000,000, railway rolling-stock \$14,000,000 and miscellaneous iron and steel products \$7,000,000. Pulp and paper mills shipped \$21,000,000 and sawmills \$17,000,000. Manufacturing in *New Brunswick* is dominated by forest products. Pulp and paper reported shipments of \$89,000,000, sawmills \$18,000,000 and sash, door and planing mills \$8,000,000. Fish processing was the second largest industry with shipments of \$20,000,000 and other food industries of importance were the miscellaneous food preparations industry, slaughtering and meat packing, butter and cheese, and bakeries. In *Newfoundland*, too, the forests are of major importance to manufacturing production. The pulp and paper industry accounted for nearly 60 p.c. of the provincial total of \$110,000,000 in 1954, with shipments valued at \$62,000,000. Fish processing was second with \$13,000,000 followed by breweries with \$4,000,000 and sash, door and planing mills with \$3,000,000. *Prince Edward Island* had a manufacturing output of \$23,000,000 in 1954, butter and cheese accounting for \$5,000,000, fish processing for \$4,000,000 and prepared stock and poultry feeds for \$1,000,000.

The manufacturing shipments of the *Yukon* and *Northwest Territories* are small but increased from \$2,500,000 in 1953 to \$3,500,000 in 1954. The main items were petroleum products and wood products.

### Statistics of Manufactures by Province, 1954

NOTE.—Values are rounded to the nearest thousand.

Province or Territory	Establishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost of Materials Used	Value Added by Manufacture	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Newfoundland....	790	9,892	30,101	4,057	46,503	59,484	109,568
Prince Edward Island.....	209	1,774	3,000	367	17,002	6,045	23,470
Nova Scotia.....	1,526	29,611	71,740	10,800	161,295	129,778	300,073
New Brunswick....	1,057	22,107	55,109	12,013	157,216	118,016	287,350
Quebec.....	12,191	424,095	1,214,661	150,486	2,806,248	2,448,027	5,395,787
Ontario.....	13,178	598,914	1,954,767	186,767	2,412,537	3,930,730	8,533,167
Manitoba.....	1,522	41,224	116,455	10,363	328,828	232,488	571,409
Saskatchewan....	1,010	11,526	33,510	7,120	169,326	104,560	280,734
Alberta.....	2,052	32,765	96,910	11,022	346,525	219,327	575,278
British Columbia.	4,462	95,867	319,803	31,246	794,885	651,813	1,474,156
Yukon and Northwest Territories.	31	191	630	191	1,493	1,856	3,536
Canada.....	38,028	1,267,966	3,896,686	424,432	9,241,858	7,902,124	17,554,528



## Preliminary Statistics of Manufactures by Province, 1955

NOTE.—Values are rounded to the nearest thousand.

Province or Territory	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost of Materials	Value of Factory Shipments
	No.	\$'000	\$'000	\$'000	\$'000
Newfoundland.....	9,420	27,523	5,466	47,333	109,379
Prince Edward Island.....	1,902	3,187	385	16,847	23,839
Nova Scotia.....	29,120	75,288	10,559	169,866	322,901
New Brunswick.....	22,217	56,816	12,394	161,592	296,355
Quebec.....	424,888	1,260,693	161,089	3,146,612	5,908,216
Ontario.....	613,724	2,076,729	206,405	4,996,647	9,616,319
Manitoba.....	41,040	121,386	11,526	329,714	590,933
Saskatchewan.....	11,499	34,424	7,716	174,146	295,177
Alberta.....	34,658	106,444	12,225	368,069	641,356
British Columbia.....	101,311	347,568	34,291	884,399	1,659,527
Yukon and Northwest Territories.....	199	662	187	2,961	5,011
<b>Canada.....</b>	<b>1,289,978</b>	<b>4,110,720</b>	<b>462,243</b>	<b>10,298,186</b>	<b>19,469,013</b>

**Manufacturing in Urban Centres.**—The prosperity of most of the cities and towns of Canada is intimately connected with their manufacturing industries which provide employment for a large proportion of the labour forces. The following table gives the principal statistics for those urban centres in which manufacturers shipped goods to the value of more than \$100,000,000 in 1954. Excluded are certain centres for which the publication of such figures would disclose the activities of an individual firm.

### Urban Centres with Value of Factory Shipments of Over \$100,000,000 in 1954

NOTE.—Statistics for urban centres cannot be published when one establishment has 75 p.c. or more or two establishments have 90 p.c. or more of the total production.

Urban Centre	Establishments	Employees	Salaries and Wages	Cost of Fuel and Electricity	Cost at Plant of Materials Used	Selling Value of Factory Shipments
	No.	No.	\$'000	\$'000	\$'000	\$'000
Montreal, Que.....	4,415	184,684	539,120	19,031	1,050,161	1,983,218
Toronto, Ont.....	3,728	145,792	470,047	19,884	945,614	1,810,861
Hamilton, Ont.....	580	54,199	189,100	20,471	341,556	752,354
Vancouver, B.C.....	1,335	33,916	114,114	6,105	273,058	486,913
Montreal East, Que.....	34	6,085	23,597	15,282	326,627	481,432
Windsor, Ont.....	353	30,210	112,817	5,718	263,144	474,634
Sarnia, Ont.....	54	7,899	30,942	14,821	150,703	288,953
Winnipeg, Man.....	864	26,887	74,629	3,503	150,352	288,602
London, Ont.....	308	16,249	48,539	2,523	83,870	193,360
Edmonton, Alta.....	350	11,602	36,566	2,410	120,724	191,014
Quebec, Que.....	432	17,506	43,112	5,135	90,623	187,551
Kitchener, Ont.....	205	14,597	43,272	2,128	88,325	181,321
New Toronto, Ont.....	53	7,404	28,166	2,168	83,698	159,746
Leaside, Ont.....	56	11,188	35,989	1,853	73,558	151,494
Calgary, Alta.....	323	8,724	27,546	1,567	89,448	142,658
St. Boniface, Man.....	88	4,454	13,951	1,192	102,825	135,251
St. Laurent, Que.....	56	13,407	50,364	1,499	56,580	134,972
St. Catharines, Ont.....	114	11,578	40,043	2,267	60,129	126,685
Peterborough, Ont.....	101	9,623	33,135	1,269	63,634	124,467
Brantford, Ont.....	166	11,055	34,572	1,795	61,099	119,653
Shawinigan Falls, Que.....	50	5,634	19,968	9,633	48,377	117,980
Three Rivers, Que.....	90	7,558	23,264	6,988	48,734	115,541
New Westminster, B.C.....	134	6,320	20,927	1,445	59,214	110,596
Ottawa, Ont.....	293	10,428	30,479	2,018	45,675	106,818
Lasalle, Que.....	41	4,750	15,944	3,040	53,474	104,869
Lachine, Que.....	71	9,112	31,895	1,271	40,112	101,302



Steel framework of a giant aluminum smelter being constructed at Baie Comeau in northern Quebec, where sufficient hydro power is available for operation. The \$200,000,000 smelter will be completed late in 1957 and will provide a variety of employment for the town whose only industry has been newsprint production.

# Capital Expenditures

THE rapid build-up of capital facilities since 1946 has passed through three main phases. In the early postwar years, accumulated demand at home and abroad provided the stimulus for a rapid expansion of capital expenditure, particularly on consumer goods industries, agriculture and housing. Then, in the period following the outbreak of war in Korea, new demands were made on the economy, and the emphasis in capital expenditures shifted towards defence and defence-supporting activities. After the short recession in 1953-54, a high level of foreign demand encouraged heavy capital outlays in traditional export industries. Although different factors affected the pattern of capital expansion, two persistent underlying influences predominated—world interest in the development of new and known resources and rapid population growth which created a need for additional social capital of all kinds. The strength of these expansionary forces is indicated by the fact that capital outlays as a percentage of current dollar gross national product rose from 18.1 in 1947 to 26.6 in 1956.

## Private and Public Capital Expenditures, 1946-57

NOTE.—1947-55 figures are actual expenditures, 1956 figures are preliminary and 1957 figures are forecasts.

Year	Construction	Machinery and Equipment	Total	Percentage of Gross National Product
	\$'000,000	\$'000,000	\$'000,000	
1946.....	1,074	629	1,703	14.2
1947.....	1,424	1,065	2,489	18.1
1948.....	1,877	1,298	3,175	20.3
1949 <sup>1</sup> .....	2,124	1,378	3,502	21.3
1950.....	2,366	1,449	3,815	21.0
1951.....	2,735	1,842	4,577	21.3
1952.....	3,263	2,022	5,285	22.7
1953.....	3,665	2,176	5,841	23.9
1954.....	3,680	1,940	5,620	23.3
1955.....	4,314	2,036	6,350	23.7
1956.....	5,283	2,617	7,900	26.6
1957.....	5,586	2,947	8,533	—

<sup>1</sup>Newfoundland included from 1949.

During all periods, new levels of capital spending have been reached in the manufacturing industries. Expenditures in the consumer soft goods industries rose rapidly in the early postwar years and accounted for about 30 p.c. of all capital outlays in manufacturing but by 1956 this proportion had fallen to about 15 p.c. In recent years the impressive additions to capacity in the traditional export industries, forest products and non-ferrous metal products, and in two basic industries—iron and steel and chemical—have been outstanding.

The utilities and mining sectors of the economy have absorbed a growing share of the total capital program, the large percentage increase in the former sector reflecting accelerated activity in the construction of gas and oil pipelines, hydro-electric installations and the St. Lawrence Seaway. Expenditures in agriculture and fishing rose rapidly in the early postwar years when



## PROGRESS ON THE ST. LAWRENCE SEAWAY

cumulative replacement needs were being met and reached their peak in 1952. In forestry and construction, outlays reached a peak in 1956 but their advance has been uneven.

Investment in housing was at a high level and represented

almost one-quarter of the total investment program in the period 1946 to 1950. The firming of interest rates in 1951 and renewed scarcities of labour and materials caused a decline in house building in 1951 and 1952, but an upward trend began in 1953 which was reinforced in 1954 by legislation broadening the mortgage market. However, during 1956, difficulties in financing again began to have a restraining effect upon housing investment.

**Outlook for 1957.**—Plans for a total capital expenditure program of \$8,500,000,000 in 1957 are indicated. This is an 8-p.c. increase over the 1956 estimate of \$7,900,000,000 which was substantially less than the increase that occurred in 1955. Estimates indicate a drop of 18 p.c. in expenditures on housing in 1957 as compared with increases of 16 p.c. and 13 p.c. on non-residential construction and for the purchase of machinery and equipment. Expenditures in the utilities, commercial and institutional sectors are expected to be substantially higher. Manufacturing is estimated at 9 p.c. higher with accelerated programs in the non-ferrous metals, iron and steel and transportation industries being partly offset by a lower rate of spending in the wood products, paper and building material groups.

*Pace of construction has been rapid and, as the Seaway project progressed into the second half of the five-year schedule, emphasis began changing from planning, design and excavation to the building of structures. Almost \$180,000,000 of estimated \$200,000,000 in contracts had been awarded 46 p.c. of the excavation and 60 p.c. of the dyke construction completed and 15 p.c. of the cement placed. Excavation was finished in 1957, and 1958 will be devoted to concrete work, the installation of lock gates and equipment and the erection of bridges. The major construction areas are at Montreal in the International Rapids Section just above Cornwall.*

## Private and Public Capital Expenditures, by Sector, 1955-57

NOTE.—1955 figures are actual expenditures, 1956 figures are preliminary and 1957 figures are forecasts.

Sector and Year	Construction	Machinery and Equipment	Total
	\$'000,000	\$'000,000	\$'000,000
Agriculture and fishing.....1955	87	339	426
.....1956	99	396	495
.....1957	104	435	539
Forestry.....1955	36	27	63
.....1956	40	34	74
.....1957	35	27	62
Mining, quarrying and oil wells.....1955	248	88	336
.....1956	369	167	536
.....1957	346	184	530
Manufacturing.....1955	345	602	947
.....1956	477	872	1,349
.....1957	474	997	1,471
Utilities.....1955	649	450	1,099
.....1956	1,047	583	1,630
.....1957	1,464	721	2,185
Construction industry.....1955	16	158	174
.....1956	21	170	191
.....1957	17	151	168

Dredges preparing the entrance to the Seaway from Montreal Harbour.



The portion of Jacques Cartier Bridge over the entrance excavation will be permanently elevated to provide 120-foot clearance for ships using the Seaway.



Approach wall to Iroquois Lock, most westerly of the five new locks under construction. This lock is the first scheduled for completion.



Inside the wall of the Côte Ste. Catherine Lock the tunnel which will carry the water to and from the lock chamber to lift and lower ships is being prepared.

**Private and Public Capital Expenditures, by Sector, 1955-57—Concluded**

Sector and Year		Construction	Machinery and Equipment	Total
		\$'000,000	\$'000,000	\$'000,000
Housing.....	1955	1,499	—	1,499
	1956	1,575	—	1,575
	1957	1,283	—	1,283
Trade—wholesale and retail.....	1955	181	148	329
	1956	181	138	319
	1957	234	159	393
Finance, insurance and real estate.....	1955	82	20	102
	1956	103	22	125
	1957	128	23	151
Commercial services.....	1955	33	97	130
	1956	53	110	163
	1957	66	118	184
Institutional services.....	1955	367	41	408
	1956	360	42	402
	1957	421	48	469
Government departments.....	1955	771	66	837
	1956	958	83	1,041
	1957	1,014	84	1,098
<b>Totals.....</b>	<b>1955</b>	<b>4,314</b>	<b>2,036</b>	<b>6,350</b>
	<b>1956</b>	<b>5,283</b>	<b>2,617</b>	<b>7,900</b>
	<b>1957</b>	<b>5,586</b>	<b>2,947</b>	<b>8,533</b>

**Private and Public Capital Expenditures, by Province, 1955-57**

NOTE.—1955 figures are actual expenditures, 1956 figures are preliminary and 1957 figures are forecasts.

Province and Year		Construction	Machinery and Equipment	Total
		\$'000,000	\$'000,000	\$'000,000
Newfoundland.....	1955	66	23	89
	1956	63	28	91
	1957	77	41	118
Prince Edward Island.....	1955	12	9	21
	1956	12	9	21
	1957	12	10	22
Nova Scotia.....	1955	108	56	164
	1956	112	60	172
	1957	106	73	179
New Brunswick.....	1955	126	42	168
	1956	128	54	182
	1957	120	60	180
Quebec.....	1955	1,074	472	1,546
	1956	1,269	578	1,847
	1957	1,313	672	1,985
Ontario.....	1955	1,486	785	2,271
	1956	1,808	1,022	2,830
	1957	2,005	1,159	3,164
Manitoba.....	1955	197	104	301
	1956	245	114	359
	1957	291	118	409
Saskatchewan.....	1955	219	130	349
	1956	290	171	461
	1957	280	179	459
Alberta.....	1955	548	187	735
	1956	644	266	910
	1957	609	250	859
British Columbia <sup>1</sup> .....	1955	479	228	707
	1956	711	315	1,026
	1957	774	387	1,161
<b>Canada.....</b>	<b>1955</b>	<b>4,315</b>	<b>2,036</b>	<b>6,351</b>
	<b>1956</b>	<b>5,282</b>	<b>2,617</b>	<b>7,899</b>
	<b>1957</b>	<b>5,587</b>	<b>2,949</b>	<b>8,536</b>

<sup>1</sup>Includes Northwest Territories and Yukon Territory.





The largest refinery construction job ever undertaken in Canada was completed in Halifax in 1956. The project cost \$30,000,000 and entailed the complete rebuilding of the refinery to make it the third largest of Imperial Oil's nine refineries across Canada. Crude oil arrives by tanker from the Caribbean and is processed at the rate of 1,500,000 gal. a day.

## Construction Activity

Construction activity in 1956 is estimated at \$6,400,000,000 compared with \$5,300,000,000 in 1955 and was by far the largest program ever accomplished in one year in Canada. However, indications are that in 1957 the construction program will cost about \$6,700,000,000, a further increase over the record year of 1956.

### Value of Construction Work Performed, 1948-57

NOTE.—1948-55 figures are actual, 1956 figures are preliminary and 1957 figures are forecasts.

Year	New	Repair	Total	Percentage of Gross National Product
	\$'000,000	\$'000,000	\$'000,000	
1948.....	1,877	694	2,571	16.5
1949 <sup>1</sup> .....	2,124	732	2,856	17.3
1950.....	2,366	766	3,132	17.2
1951.....	2,734	927	3,661	17.0
1952.....	3,282	916	4,198	18.0
1953.....	3,666	974	4,640	19.0
1954.....	3,700	1,023	4,723	19.6
1955.....	4,270	1,041	5,311	19.8
1956.....	5,260	1,129	6,389	21.5
1957.....	5,563	1,139	6,702	—

<sup>1</sup>Newfoundland included from 1949.



Rayrock uranium mine in the Marion River area of the Northwest Territories will be in production in 1957.

During 1956, major projects such as the St. Lawrence Seaway, the two gas pipelines, one to the Pacific Coast and the other from the mid-west to Ontario and Quebec, together with a number of large hydro-electric developments, added greatly to the volume of engineering construction. The engineering program anticipated for 1957 is to a considerable extent a continuation of expansion plans initiated in earlier years. Commercial and institutional organizations are also planning substantially increased programs for 1957.

### Value of New and Repair Construction Work Performed, 1955-57

NOTE.—1955 figures are actual, 1956 figures are preliminary and 1957 figures are forecasts.

Type of Construction	1955		1956		1957	
	New	Repair	New	Repair	New	Repair
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
<b>Building.....</b>	<b>2,811</b>	<b>567</b>	<b>3,184</b>	<b>604</b>	<b>2,989</b>	<b>619</b>
Residential.....	1,499	238	1,575	256	1,283	273
Industrial.....	294	105	475	118	454	114
Commercial.....	427	86	510	89	599	89
Institutional.....	408	56	398	52	477	51
Other.....	183	82	226	89	176	92
<b>Engineering.....</b>	<b>1,459</b>	<b>474</b>	<b>2,076</b>	<b>525</b>	<b>2,574</b>	<b>520</b>
Roads, highway and aerodrome construction....	359	160	448	169	485	181
Waterworks and sewage systems.....	127	21	168	26	220	27
Dams and irrigation.....	35	5	53	6	51	6
Electric power construction.....	301	37	420	41	582	45
Railway, telephone and telegraph construction....	144	168	202	187	228	162
Gas and oil facilities.....	311	28	505	28	640	30
Marine construction.....	61	15	112	16	156	17
Other engineering.....	121	40	168	52	212	52
<b>Totals, Construction.</b>	<b>4,270</b>	<b>1,041</b>	<b>5,260</b>	<b>1,129</b>	<b>5,563</b>	<b>1,139</b>



**Housing.**—During 1956 there were 135,000 new dwelling units completed, an all-time high. However, the number of new houses started declined from the 1955 record of 138,276 to 127,000 units. This decline was primarily the result of a scarcity of mortgage credit which, in turn, reflected the heavy demands for long-term credit associated with the large volume of non-housing investment. The scarcity of mortgage credit had its major impact on the availability of mortgage loans insured under the National Housing Act. The value of new loans insured under the Act was down by 33 p.c. from 1955 to 1956. Dwellings financed by means of these loans represented 37 p.c. of the 1956 total compared to 53 p.c. in 1955.

The year was marked by the completion of the one-millionth postwar home—more than one-third of these million homes were completed in 1954, 1955 and 1956. These additions to the housing stock exceeded requirements resulting from the formation of new families and of non-family households and from the movement of population from farms, and the excess has made possible some decline in the numbers of families sharing accommodation.

Of the million new homes built in the postwar period, more than half have been in the cities with populations of over 30,000 people; Toronto and Montreal alone accounted for 237,000 of them. This expansion has created many problems, among them the accentuation of the stresses and strains which were already being felt at the centres of the cities. In order to aid re-development of those areas most affected by congestion and blight, amendments to the National Housing Act were made in 1956 to extend Federal Government aid to municipalities undertaking urban re-development. Urban renewal studies were undertaken during the year in Vancouver, Winnipeg, Toronto, Saint John and Halifax with financial assistance provided under the Act.

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*Ceremony on Sept. 14, 1956, marked the completion at Scarboro', Ont., of the one-millionth Canadian home built since the end of World War II. On a per capita basis more homes are privately owned in Canada than in any other country of the world.*







Steel pipe, like power, is a major life-line of the Canadian economy. It is used everywhere as a carrier for fuels and water, in heating and construction. This plant at Welland, Ont., produces pipe up to 16 inches in diameter for a myriad of uses. Under construction at the same location is Canada's first "big-inch" steel pipe mill which will produce pipe from 20 to 36 inches in diameter, some of which will be used for the natural gas line from Western Canada to Montreal.

# The Economy in 1956

CANADA'S production of goods and services continued to increase during the year 1956. At the end of the year the physical volume of production was 7 p.c. above the 1955 level and for the second consecutive year exceeded the average rate of increase of over 4 p.c. which has prevailed in the decade since the end of the Second World War—in that period only one year, 1954, recorded a decrease from the previous year's level. During 1956 prices rose between 3 p.c. and 4 p.c. so that the increase in the value of the gross national product at market prices approached 11 p.c., advancing the total product to almost \$30,000,000,000. This 11-p.c. increase compares with an advance of 10 p.c. in 1955. Because of the slack of unemployed labour and productive facilities at the beginning of that year, however, less than 1 p.c. of the 1955 gain was caused by price rises, the remaining 9 p.c. being an addition to the real output of goods and services. But in 1956 the economy was bumping increasingly against short-run ceilings imposed by the available supply of labour and productive capacity and, although the inflow of imported goods eased many potential shortages, the competition for the available supply of goods and services led to price increases during the year. As a result of the higher volume of production and higher prices, both labour income and profits rose substantially during the year, leading to another gain in personal and business income. Despite a 20-p.c. increase in saving by Canadians, net foreign investment in Canada during 1956 amounted to \$1,300,000,000, almost twice the 1955 rate.

## Demand, Supply and Prices

The character of the upswing in economic activity which began in the fourth quarter of 1954 changed in an important respect during 1956, with a much heavier relative emphasis on business capital expenditure than on house building and consumer expenditures. In 1955, expenditures on new dwellings had increased 27 p.c. over the 1954 level, whereas in 1956 the increase of only 1 p.c. actually became a decrease in the latter part of the year. On the other hand, expenditures on new business premises, factories and other non-residential construction such as the St. Lawrence Seaway, oil-well drilling and the construction of gas pipelines plus expenditures on new industrial machinery and other business capital equipment rose by 35 p.c. over the 1955 level compared with an increase of less than 10 p.c. in 1955. Business capital expenditure in 1956 took place mainly in mining and oil wells, in the paper products, metal products and chemical products manufacturing industries, and in public utilities. It accounted for about one-sixth of the gross national product, the highest proportion since 1929. If residential construction is included, the ratio rises to over one-fifth, slightly higher than in 1929.

While this change in the composition of capital expenditure took place, the other principal components of final demand for the output of Canadian industry continued strong and increased by almost the same percentage in both years. Thus expenditure on consumer goods and services by persons

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NOTE.—The figures used for the full year 1956 are based, for the most part, on data for the first nine months of the year.



*Capital expenditures on new factories, business premises and other non-residential construction was 35 p.c. higher in 1956 than in 1955. Over \$28,000,000 was spent on the construction of this cement plant on the shores of Lake Ontario. It was ready for full operation in March 1957 and its capacity is 3,000,000 bbl. of cement a year.*

increased 8 p.c. in 1956, exports by 12 p.c., and government expenditure on goods and services by 9 p.c. Personal expenditure on durable consumer goods showed strength during 1956, with significant increases in the purchases of new passenger cars, furniture and house furnishings, appliances and radios. The sales of television sets, however, declined. In non-durable goods the major advances were in food, clothing, household supplies and motor vehicle parts and supplies. Among services, the most notable increase in expenditure was attributable to increases in household rents.

The continued high level of economic activity in the United States and in overseas countries provided a good market for increased exports. The increase in the available supply from Canada was made possible by capital expenditures in previous years which had increased the productive capacity of the primary resources industries. These included the development of iron-ore mines in the Quebec-Labrador region and the completion of a 360-mile railway from the mines to the St. Lawrence River; expanded iron-ore production facilities at Wabana, Nfld.; the construction of rail outlets for copper produced in Quebec's Chibougamau area and the supplying of hydro-electric power to the area; increased production of copper ore in the Gaspé Peninsula following the receipt of power from the north shore of the St. Lawrence; greatly increased uranium production from new developments in the Blind River district of northern Ontario and the Beaverlodge area in northern Saskatchewan; the construction of new pulp and paper mills on Vancouver Island; and the increase of aluminum capacity at Kitimat in British Columbia,



although low water levels in Quebec during the winter of 1955-56 reduced Quebec production of aluminum and tended to offset the increased British Columbia production. In addition, an increase of 50 p.c. in the value of wheat sales to foreign countries accounted for a large portion of the total increase in exports but a weakening in overseas markets resulted in some reduction in the exports of lumber. Receipts from shipping and freight increased.

During the first nine months of 1956 inventories accumulated at a greater rate than during the same period of 1955 but it was not possible to estimate what portion of this increase represented a desired increase in stocks to keep pace with rising sales and what portion, if any, was an involuntary increase resulting from a failure to sell purchased goods. This stepped-up rate of inventory accumulation accounted, however, for only about 10 p.c. of the gain in the value of the gross national product during 1956. The rate of accumulation slackened during the third quarter of the year, but only at the retail level did there appear to be some liquidation of stocks.

In all, the total final purchases of goods and services increased by 11 p.c. in 1956 compared with 8 p.c. in 1955. This increase together with the inventory build-up put a strain on the productive facilities of the economy and, to meet the greater demand for goods and services, an increase in imports of one-fifth over the 1955 level took place during the year. Imports thus formed over 20 p.c. of the gross available supply of goods and services in Canada, a high figure though lower than the proportion of almost 25 p.c. which occurred in 1944 and 1929. During the first half of 1956, approximately one-third of the merchandise imports consisted of machinery and equipment and parts, one-third consisted of industrial materials, fuel and lubricants, and the other third consumer goods. It is possible that the steel strike in the United States in July 1956 may have had some effect on the level and composition of Canada's imports in the latter part of the year.

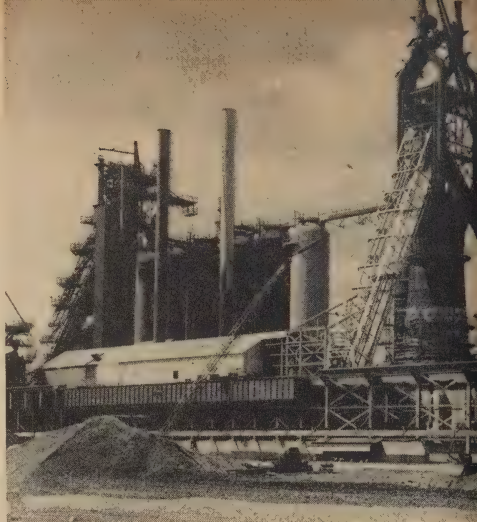
Total currency and active bank deposits held by the general public rose slightly during the year and, together with increases in consumer credit granted by retail stores and instalment finance companies, provided some additional purchasing power. The competition for the available supply

cent capital ex-  
penditures on pro-  
ductive capacity  
are now paying  
off in increased  
supply of goods,  
increased employ-  
ment and higher  
personal and busi-  
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of the most spec-  
tacular of the  
primary industry  
developments is  
the aluminum smel-  
ter at Kitimat,  
B.C., ingots from  
which are here  
being loaded for  
transport.



The demand for steel and steel goods from every sector of the economy explains why the Canadian market has been able to absorb a sharply increased production as well as a record level of machinery imports and large tonnages of imported steel rolling-mill products. New homes, new factories, new power plants and great activity in mining, road-building and other transport facilities and communications have precipitated an increase in basic steel-making capacity. New processing mills have been built and old mills expanded and modernized.

A second 1,000-ton blast furnace under construction alongside one already in operation.



of money and credit to finance the desired increases in expenditures, however, caused the price of money (interest rates) to rise during the year. For example, the average yield on three-month Treasury bills rose from about 2½ p.c. to about 3½ p.c. during the year.

The competition for the available supply of labour, goods and services caused increases in prices in general during the year. Higher prices accounted for about one-seventh of the increase in personal expenditure on consumer goods and services, almost one-quarter of the increase in expenditure on non-residential construction and new machinery and equipment, almost two-thirds of the increase in the value of residential construction put in place, about one-half of the increase in government expenditure on goods and services, and about one-fifth of the increase in the value of exports. Price increases also accounted for nearly one-half of the increase in the value of inventories which took place during the year. The price of merchandise imports, however, remained relatively unchanged partly because of the appreciation of almost 4 p.c. in the foreign value of the Canadian dollar during the year.

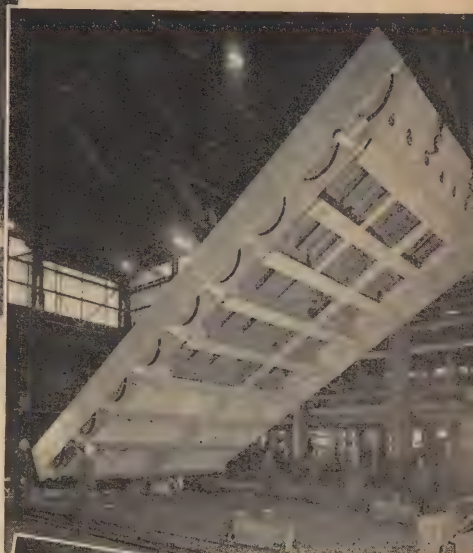
The competing demands on the available supply of credit together with the shortages of serviced land in some municipalities was reflected in a decline in housing starts, which numbered 127,000 as compared with 138,276 in 1955.

## **Employment, Income and Production**

The 7-p.c. increase in the production of Canadian industry in 1956 was made possible in part by an advance of 5 p.c. in the number of persons with jobs in the non-agricultural sector of the economy during the first nine months of the year, including a 12-p.c. increase in the number of construction workers with jobs. The employment increase resulted from immigration, the natural increase of the adult population, the re-entry of some workers who had been voluntarily out of the labour force, and a shift of workers out of agriculture. Only about 3 p.c. of this total labour force was reported without jobs and seeking work, the lowest level since 1953. Higher employment and rising



Pouring molten steel from a 60-ton ladle into moulds where it will cool and solidify into ingots.



of the forty-eight hydraulic regulating gates required for the St. Lawrence power project. They are being fabricated at Lachine, Que.

metal is in demand for everything from tractors to cars.



Canada is now virtually self-sufficient in the production of tin plate and to complete that sufficiency two new electrolytic tinning plants are under construction.





wage rates brought total wages, salaries and supplementary labour income 12 p.c. above the 1955 level and the expenditure of part of this increased income contributed to the 11-p.c. increase in gross national expenditure.

Corporation profits before taxes during the year were 13 p.c. higher than in 1955 (profits after taxes were estimated to be 16 p.c. higher). The net income of non-farm unincorporated business was 6 p.c. higher than in 1955, while rising bond and mortgage interest rates and rents led to an increase in investment income. When labour income, military pay and allowances and farm income are added to these sources of income, the total net national income of Canadians in 1956 amounted to \$23,000,000,000, an increase of 11 p.c. over 1955. Personal disposable income of Canadians rose by 10 p.c. in 1956 to a level approaching \$20,000,000,000. This represents an increase of almost 60 p.c. since 1950, but account must be taken of increases during the period in prices of consumer goods and services and in population. The real value of disposable income per person has risen, therefore, by about one-sixth in the past five years, or an average of about 3 p.c. each year.



*There were 147,000 persons added to Canada's non-agricultural labour force during 1956, accounted for by the natural increase of the adult population, immigration, a shifting of workers from agriculture to industry and re-employment of persons who had previously left the labour force.*



average weekly expenditure for food in 1955 was estimated at \$6.38 per person. Families whose income ranged from \$2,000 to \$6,500. This expenditure would have increased substantially during 1956, since the index number of food prices advanced 8 p.c. from May to November.



Agricultural output was up 8 p.c. in 1956 while marketings of agricultural products (especially grains, poultry and livestock) increased 13 p.c. This in turn led to an increase of 13 p.c. in the net income received by farm operators from farm production. The level of farm incomes was, however, still below the 1953 level when prices of farm products were higher and the volume of agricultural exports larger. In the middle of 1956 an increase occurred in the prices of Canadian farm products but even so they were still considerably below the peak levels of 1951.

In the primary resource industries, the output of the mines and oil and gas wells advanced 14 p.c. in 1956. The most significant increases were in iron ore (40 p.c.) and in copper, nickel, gypsum and asbestos; the production of gold, lead and zinc was lower. In fuels, the output of crude petroleum and the distribution of natural gas increased by about one-third and the production of coal rose slightly. Hydro-electric power generated to support the higher productive activity also increased. Corporation profits in the mining, quarrying and oil wells industries were up 26 p.c. during the first nine months of the year over 1955 levels, while corporation profits of firms in the public utility industries increased by a smaller amount. Forestry activity was up by 10 p.c. and fishing and trapping showed small gains.

Notable increases took place in the production of some of the manufacturing industries which process the products of the primary resources industries into fuels or into fabricated materials for export or for use in secondary manufacturing industries. These included the primary iron and steel industry, products of the petroleum and coal industry, and the non-metallic mineral products industry group. A more moderate gain was recorded by the pulp and paper products industry while the wood products industry group failed to advance significantly.

Manufacturing industries generally increased 6 p.c. in 1956—durable goods by 8 p.c. and non-durable goods by 5 p.c. Activity in the durable goods industries was affected by the stepped-up rate of investment in business

plant, machinery and equipment, and by increased personal expenditure for durable goods. Most industries in the iron and steel group showed substantial increases, particularly the iron castings and fabricated and structural steel industries, as well as the primary iron and steel industry—all three of these industries increasing their output over the 1955 levels by 20 p.c. or more. The agricultural implements industry, however, recorded a decrease of 10 p.c. and operated below the 1953 level. The output of the electrical apparatus and supplies group rose significantly while the output of the other durable goods groups—wood products, non-ferrous metal products and transportation equipment—increased by much smaller amounts. The transportation equipment industry did not reach the peak volume of output attained in mid-1953 partly perhaps because of a five-month strike affecting the output of one large motor vehicle producer which ended in February 1956.

Activity in most non-durable goods industries was also up but production in the food industries increased by less than 1 p.c. and, although activity in the clothing industries increased 7 p.c., the output of textile mills declined by almost 1 p.c. However, despite that decline, corporation profits before taxes for the first nine months of the year for the textile and clothing industries were up 27 p.c. over 1955. The levels of output in these industries were below the 1953 peak levels and profits below the 1950 and 1951 levels. Other significant increases in the profits of manufacturing companies were in the iron and steel products, non-ferrous metal products, products of petroleum and coal, rubber products, and wood and paper products industry groups.

Substantial increases occurred in the output of the transportation industries and the storage industry (including grain elevators), influenced by increased marketings of agriculture, increased shipments by the resources industries and greater civil aviation activity. There was greater movement of wheat, pulpwood, crude petroleum and natural gas, ores, concentrates, and refined metals and imported goods. Radio and television broadcasting activity showed a large gain while the volume of telegraph and cable services increased more moderately. Profits before taxes of companies in the transportation, storage, and communications industries rose 30 p.c. during the first nine months of the year.

Increased personal expenditure on consumer goods and services was reflected in a 7-p.c. increase in the volume of retail sales. Wholesale trade advanced nearly 10 p.c., partly because of increased retail activity and partly because of higher exports, construction activity, and business expenditure on machinery and equipment. On a nine-month comparison profits before taxes of incorporated companies in wholesale trade increased by 31 p.c. and those in retail trade by a much smaller proportion.

## ***Saving and Investment***

Canadians, enjoying a greater amount of disposable income, increased their personal saving by 29 p.c. in 1956 over 1955. This was more than twice as high as the 1950 level, but only 7 p.c. higher than the previous peak established in 1953. Total saving by businesses, governments and persons, amounted to \$6,200,000,000 in 1956, of which personal saving accounted for 26 p.c., undistributed corporation profits for 17 p.c., depreciation allowances for 50 p.c., and the government surplus for 7 p.c. On the other hand, gross investment in new residential construction, business plant and other



non-residential construction, new machinery and equipment, and inventories totalled \$7,500,000,000. This gap between total saving by Canadians and total investment expenditure in Canada represents net foreign investment in Canada in 1956 of \$1,300,000,000. Almost half this net foreign investment was financed by a flow of long-term capital obtained by sales of Canadian stocks and bonds in the United States and other foreign countries. About one-quarter of it was financed by direct investment of foreign companies in Canadian subsidiaries and the remainder represented a reduction of holdings of foreign funds by Canadians and an increase in accounts payable to foreigners by Canadian business firms.

### *National Income, Gross National Product and Gross National Expenditure, Selected Years 1928-56*

(Millions of Dollars)

Item	1928	1939	1946	1950	1953	1954	1955	1956 <sup>1</sup>
<b>Income</b>								
Wages, salaries and supplementary labour income.....	2,705	2,575	5,323	8,311	11,715	11,994	12,810	14,300
Military pay and allowances.....	7	32	340	137	309	367	394	425
Investment income.....	872	917	1,975	3,155	3,782	3,654	4,355	4,839
Accrued net income of farm operators from farm production <sup>2</sup> .....	655	385	1,112	1,503	1,652	1,147	1,404	1,592
Net income of non-farm unincorporated business.....	584	464	1,071	1,444	1,675	1,646	1,775	1,885
<b>Net National Income at Factor Cost.....</b>	<b>4,823</b>	<b>4,373</b>	<b>9,821</b>	<b>14,550</b>	<b>19,133</b>	<b>18,808</b>	<b>20,738</b>	<b>23,041</b>
Indirect taxes less subsidies.....	679	733	1,269	2,018	2,907	2,943	3,209	3,587
Depreciation allowances, and similar business costs.....	659	610	903	1,636	2,418	2,673	2,865	3,196
Residual error of estimate	-56	-9	33	-1	15	-107	-43	-169
<b>Gross National Product at Market Prices</b>	<b>6,105</b>	<b>5,707</b>	<b>12,026</b>	<b>18,203</b>	<b>24,473</b>	<b>24,317</b>	<b>26,769</b>	<b>29,655</b>
<b>Expenditure</b>								
Personal expenditure on goods and services....	4,194	3,904	7,977	12,029	15,112	15,823	16,888	18,241
Government expenditure on goods and services.....	597	735	1,832	2,326	4,388	4,418	4,738	5,175
Gross Domestic Investment—								
New residential construction.....	236	185	371	801	1,061	1,166	1,476	1,491
New non-residential construction.....	411	166	443	1,026	1,706	1,659	1,775	2,473
New machinery and equipment.....	489	254	584	1,389	2,073	1,841	2,017	2,644
Change in inventories.....	157	331	519	960	591	-270	508	762
Exports of goods and services.....	1,773	1,451	3,210	4,183	5,400	5,147	5,753	-1,300
Less: Imports of goods and services.....	-1,808	-1,328	-2,878	-4,513	-5,843	-5,574	-6,430	
Residual error of estimate	56	9	-32	2	-15	107	44	
<b>Gross National Expenditure at Market Prices.....</b>	<b>6,105</b>	<b>5,707</b>	<b>12,026</b>	<b>18,203</b>	<b>24,473</b>	<b>24,317</b>	<b>26,769</b>	<b>29,655</b>

<sup>1</sup> Preliminary estimates based on data for the first nine months of the year.

<sup>2</sup> Includes undistributed Wheat Board trading profits and an inventory valuation adjustment on a calendar-year basis for grain held by the Wheat Board.

# Source and Disposition of Personal Income, Selected Years 1928-56

(Millions of Dollars)

Source and Disposition	1928	1939	1946	1950	1953	1954	1955	1956 <sup>1</sup>
<b>Source</b>								
Wages, salaries and supplementary labour income.....	2,705	2,575	5,323	8,311	11,715	11,994	12,810	14,300
Less: Employer and employee contributions to social insurance and government pension funds.	-22	-35	-149	-256	-390	-396	-420	-468
Military pay and allowances.....	7	32	340	137	309	367	394	425
Net income received by farm operators from farm production <sup>2</sup> .....	639	435	1,090	1,402	1,657	1,151	1,382	1,582
Net income of non-farm unincorporated business.....	584	464	1,071	1,444	1,675	1,646	1,775	1,885
Interest, dividends and net rental income of persons.....	597	602	957	1,295	1,649	1,779	1,960	2,112
Transfer Payments to Persons—								
From government (excluding interest).....	87	229	1,106	1,033	1,464	1,630	1,725	1,747
Charitable contributions by corporations.....	5	6	12	25	28	25	31	35
Net bad debt losses of corporations.....	16	12	11	23	25	26	26	28
<b>Personal Income.....</b>	<b>4,618</b>	<b>4,320</b>	<b>9,761</b>	<b>13,414</b>	<b>18,132</b>	<b>18,222</b>	<b>19,683</b>	<b>21,646</b>
<b>Disposition</b>								
Personal Direct Taxes—								
Income taxes.....	30	62	711	612	1,287	1,296	1,296	1,494
Succession duties.....	12	28	54	66	73	78	120	136
Miscellaneous.....	17	22	31	62	72	60	67	80
<b>Total Personal Direct Taxes.....</b>	<b>59</b>	<b>112</b>	<b>796</b>	<b>740</b>	<b>1,432</b>	<b>1,434</b>	<b>1,483</b>	<b>1,710</b>
Personal Expenditure on Consumer Goods and Services—								
Non-durable goods.....	2,377	2,210	5,073	7,241	8,581	8,991	9,469	10,207
Durable goods.....	348	292	590	1,343	1,790	1,694	1,901	2,096
Services.....	1,469	1,402	2,314	3,445	4,741	5,138	5,518	5,938
<b>Total Personal Expenditure on Consumer Goods and Services..</b>	<b>4,194</b>	<b>3,904</b>	<b>7,977</b>	<b>12,029</b>	<b>15,112</b>	<b>15,823</b>	<b>16,888</b>	<b>18,241</b>
Personal Saving—								
Personal saving excluding farm inventory change.....	387	244	1,045	514	1,538	1,080	1,101	1,527
Farm inventory change.....	-22	60	-57	131	50	-115	211	168
<b>Total Personal Saving.....</b>	<b>365</b>	<b>304</b>	<b>988</b>	<b>645</b>	<b>1,588</b>	<b>965</b>	<b>1,312</b>	<b>1,695</b>
<b>Personal Income.....</b>	<b>4,618</b>	<b>4,320</b>	<b>9,761</b>	<b>13,414</b>	<b>18,132</b>	<b>18,222</b>	<b>19,683</b>	<b>21,646</b>
<b>Personal disposable income<sup>3</sup>.....</b>	<b>4,559</b>	<b>4,208</b>	<b>8,965</b>	<b>12,674</b>	<b>16,700</b>	<b>16,788</b>	<b>18,200</b>	<b>19,936</b>

<sup>1</sup> Preliminary estimates based on data for the first nine months of the year. <sup>2</sup> This item differs from item four in the preceding table in that it excludes undistributed Wheat Board trading profits and the inventory valuation adjustment for grain held by the Wheat Board.

<sup>3</sup> Personal income less total personal direct taxes.



*Port Alberni on the west coast of Vancouver Island, one of British Columbia's urban centres established in the late 1800's by the forest industry and still relying on the forests for existence. Lumber mills, pulp mills, plywood and shingle mills, provide employment for its population of about 11,000.*





Loading newsprint at Quebec Harbour.

## TRADE and TRANSPORT



THE functioning of a transcontinental national economy, currently measured at nearly \$30,000,000,000 of goods and services, constitutes a unique and ever-challenging task for a nation of barely 16,100,000 people the majority of whom are scattered in a broken ribbon of settlement in close proximity to the industrially mature United States whose influence on the Canadian economy is great and pervading. Yet Canada's enormous industrial growth of recent years and its new confidence in the national ability to finance and carry through many massive undertakings of advanced industrialism merely serve to confirm the soundness of a century-old Canadian tradition of creating national transcontinental economic facilities that would ensure the development of a strong political entity in the northern half of this Continent.

That the experiment of nation-building has proven eminently successful is evidenced by the vast network of Canada's ultra-modern transportation and communications systems, the range, diversity and quality of its wholesale and retail trade and service industries, the skill and enterprise of its business community, the soundness of its financial institutions, the flood of investment capital into this land of unmatched opportunity, its foremost per capita rating among the world's great trading nations and—perhaps most significant—a standard of living for the Canadian people that is among the highest in the world.



*The interest of the manufacturer and of the distributor is forever in the direction of the consumer, around whom the wheels of business turn. Sales by Canadian retailers topped all previous records in 1956 for which year they were estimated at more than \$14,000,000,000.*



# Domestic Trade

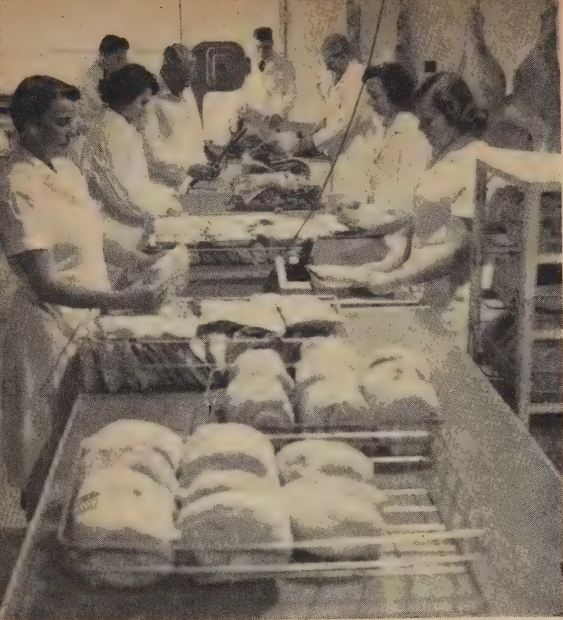
**D**OMESTIC trade in its widest sense includes the flow of goods from importer, manufacturer or producer through all the phases of distribution to the ultimate domestic consumer. Combined with this distribution of goods are all the necessary attendant services of transportation, storage, credit, etc. The field of services can also be broadened to include professional and personal services, such as theatres and advertising agencies, all of which account for some measure of consumer expenditure. A detailed review of the whole subject is not possible in the limited space available and only current statistics on the distributive trades are given here, followed by brief data on prices which are an integral part of wholesale and retail sales.

## *Distribution Trends*

Statistics on the distribution of goods at the wholesale and retail levels are available from 1930, when the first complete census of domestic trade was taken. Since that year, population growth and increasing buying power have advanced retail sales from \$2,735,740,000 to \$14,085,800,000 in 1956. These dollar sales have not been adjusted for price increases during the period so that it is not possible to estimate the increase in the actual volume of retail trade.

During the past twenty-five years, population and industrialization factors have not only produced higher retail sales but, in conjunction with changing social attitudes and merchandising methods, have resulted in marked variations in the relative significance of the various retail trades. For instance, grocery and meat stores in 1956 accounted for 18.6 p.c. of all retail sales as compared with 14.8 p.c. in 1930. This higher proportion claimed by the food retailers is partly caused by the fact that most foods are presented to the consumer today in more highly manufactured form, many of them pre-cooked or frozen and either partly or completely ready to serve. They are also much better and more expensively packaged. The customer in demanding such service must pay for it. Partly responsible also is the fact that grocery and meat stores now sell many items of household equipment that can in no sense be considered as food. This multiplication of commodities merchandised, which has become prevalent in other types of retail stores as well, is tending to merge the commodity characteristics of previously distinct distributive trades.

The advance of motor vehicle sales has been a definite characteristic of the period since 1930. In that year sales of motor vehicles accounted for 9.2 p.c. of total retail sales. The proportion dropped considerably during the depression and war years but since then has made a most remarkable advance to reach 17.9 p.c. of total sales in 1956, a percentage not too far below that for the food stores; these figures do not include sales of used cars, except insofar as they are sold by new car sales organizations. Advances in the same comparison were also shown by hardware and building materials stores from 5.0 p.c. of total sales to 5.5 p.c., and furniture and household



*Packaging foods for delivery to households under a home-freezer and food plan. Freezers sold by the provisioner are kept stocked with a variety of prepared foods ordered by the housewife.*

appliance stores from 3.4 p.c. to 4.1 p.c. These increases were at the expense of sales by general and department stores and clothing and shoe stores. Altogether the types of retail store mentioned accounted for 64.8 p.c. of total retail sales in 1956 compared with 60.3 p.c. in 1930.

Of great significance in retailing trends during the post-1930 period was the increase in the share of business done by chain stores in certain lines of selling. Chain store operation represents almost the entire trade of variety stores and is very prominent in the food field where its share of total sales increased from 26.1 p.c. in 1930 to 39.6 p.c. in 1955. This growth is much more noticeable in the larger cities and its advance there can be attributed largely to the shopping-centre development in suburban areas of those cities. The stores in the shopping centres are usually either branches of larger local stores or of regional or country-wide chains.

Another recent trend in retailing is the introduction of the so-called 'discount' houses. With a certain unbalance of supply and demand for appliances, especially refrigerators, stoves and washing machines, long-established retailers as well as new mass-volume distributors have reduced prices and offered exceptional trade-in allowances or other bonuses to attract customers. For somewhat the same reason, credit buying has been encouraged by retailers through the provision of easier credit terms and revolving charge or permanent budget account plans and consumer debt has expanded to great proportions in recent years. Retail dealers had an estimated \$924,600,000 owing on their books at the end of 1955. At the same date, sales finance company accounts outstanding, which were largely on motor vehicle purchases, amounted to \$601,000,000 on consumer commodities. These figures do not include debt incurred for the purchase of goods through personal loan companies, banks, co-operative credit organizations, etc. Another inducement introduced by the retailer in his attempt to meet the competition for the consumer's dollar is the controversial trading stamp.

## PRODUCER TO CONSUMER

A great deal of organization and care lies behind the presentation of fresh crisp vegetables and delicate fruits to the consumer in his local store. Products from Canada's market gardens and orchards and products imported from all over the world are unloaded daily at wholesale houses in the larger distribution centres where buying and selling follows somewhat the same pattern as that at a stock exchange.

The Ontario Food Terminal at Toronto is one of the largest and most modern receiving points on this Continent.



It is not so long ago that out-of-season fruits and vegetables were looked upon as luxuries. Today's tempting display, which knows no season, is repeated thousands of times over in retail outlets.



Food provisioners, involving the sale of a home freezer and the constant replenishing of frozen foods by companies with frozen food storage facilities and delivery service to the home, have lately entered the distribution field and overhead in connection with the selling of certain popular products such as cigarettes, candy and soft drinks is being cut down through the use of automatic vending machines.

**Current Surveys.**—During the period between the decennial censuses of 1951 and 1961, certain phases of the distributive trades are being measured statistically, some by sample surveys, others on complete coverage. These cover the important field of retail trade as well as a section of wholesale trade and selected service trades.

**Retail Trade.**—This phase of distribution is measured statistically on a monthly basis with annual estimates compiled for intercensal years. Estimates for 1955 and 1956 place retail trade at \$13,111,900,000 and \$14,085,800,000, respectively. All provinces contributed to the increase in the later year.

### *Retail Store Sales, by Types of Business and by Province, 1954-56*

Type of Business and Province	Sales			Percentage Change 1955-56
	1954	1955	1956	
Type of Business	\$'000,000	\$'000,000	\$'000,000	
Grocery and meat stores.....	2,279.4	2,429.6	2,616.7	+ 7.7
Other food and beverage stores.....	924.1	949.6	989.5	+ 4.2
General stores.....	515.0	529.8	557.3	+ 5.2
Department stores.....	1,061.7	1,150.5	1,257.5	+ 9.3
Variety stores.....	233.6	250.2	276.2	+10.4
Motor vehicle dealers.....	2,028.8	2,370.1	2,524.2	+ 6.5
Garages and filling stations.....	632.3	717.9	756.7	+ 5.4
Men's clothing stores.....	207.2	214.3	227.8	+ 6.3
Family clothing stores.....	191.3	199.9	214.7	+ 7.4
Women's clothing stores.....	221.4	225.2	240.3	+ 6.7
Shoe stores.....	120.7	123.2	132.9	+ 7.9
Hardware stores.....	246.5	256.0	274.4	+ 7.2
Lumber and building material dealers.....	406.2	450.7	497.1	+10.3
Furniture, radio and appliance stores.....	485.8	540.5	583.2	+ 7.9
Restaurants.....	452.6	467.6	490.5	+ 4.9
Fuel dealers.....	249.8	267.9	315.3	+17.7
Drug stores.....	281.8	300.3	314.7	+ 4.8
All other stores.....	1,527.8	1,668.7	1,816.8	+ 8.9
<b>Totals.....</b>	<b>12,065.8</b>	<b>13,111.9</b>	<b>14,085.8</b>	<b>+ 7.4</b>
<b>Province</b>				
Atlantic Provinces.....	1,025.2	1,127.1	1,198.1	+ 6.3
Quebec.....	2,797.6	3,005.7	3,282.2	+ 9.2
Ontario.....	4,634.5	5,115.2	5,411.9	+ 5.8
Manitoba.....	637.0	669.3	692.1	+ 3.4
Saskatchewan.....	758.3	748.0	801.1	+ 7.1
Alberta.....	963.6	1,035.0	1,140.6	+10.2
British Columbia (incl. Yukon and N.W.T.)..	1,249.5	1,411.6	1,559.8	+10.5

Retail chain store sales amounted to \$2,354,000,000 in 1955 which was 18 p.c. of estimated total retail sales. Firms considered as "chains" are those operating four or more retail outlets under the same ownership and carrying on the same or related kind of business. There were 496 business firms in this category in 1955 operating 8,274 stores.



*The one-stop shopping area capable of supplying most of the everyday needs of the housewife has become part of suburban life in Canada's expanding cities. Carlingwood Shopping Centre serves a rapidly growing residential area in west Ottawa.*

### *Chain Store Statistics, 1930, 1941 and 1951-55*

Year	Stores	Retail Sales	Salaries to Store Employees	Stocks on Hand End of Year		Accounts Outstanding End of Year
				Store	Warehouse	
	Av. No.	\$'000	\$'000	\$'000	\$'000	\$'000
1930.....	8,097	487,336	50,405	60,457	—	—
1941.....	7,622	639,210	57,777	68,619	20,976	38,376
1951.....	7,846	1,775,744	153,599	186,562	60,490	53,816
1952.....	7,766	1,924,873	154,642	172,886	55,215	77,475
1953.....	7,835	2,048,228	171,167	179,704	52,096	91,538
1954.....	8,136	2,146,635	181,509	191,049	57,814	102,747
1955.....	8,274	2,353,955	199,611	205,833	63,120	127,362

The inflationary pressures exerted upon the Canadian economy during 1956 and the consequent monetary policy followed by the Bank of Canada focussed a great deal of attention on the trend of consumer credit which, by the end of June, had reached an estimated high, in terms of outstanding balances for selected items, of \$2,302,000,000.

## Consumer Credit Outstanding—Estimates of Selected Items, 1951-56

SOURCE: Bank of Canada, Statistical Summary, September 1956.

Date	Charge Accounts	Instalment Credit			Cash Personal Loans	Total Selected Items
		Retail Dealers	Finance and Loan Companies	Total		
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
1951—Dec. 31.....	283	123	186	309	381	973
1952—“ “.....	309	243	373	616	460	1,385
1953—“ “.....	339	284	520	804	567	1,710
1954—“ “.....	363	322	497	819	661	1,843
1955—Mar. 31.....	301	304	496	800	675	1,776
June 30.....	317	314	559	873	743	1,933
Sept. 30.....	330	334	610	944	779	2,053
Dec. 31.....	374	377	601	978	830	2,182
1956—Mar. 31.....	331	362	596	958	849	2,138
June 30 <sup>a</sup> .....	338	368	704	1,072	892	2,302

Since the end of the War there has been a very large increase in the sale of new passenger cars. From 159,205 vehicles in 1947, sales increased to 406,663 in 1956. There has also been a steady advance from year to year in the proportion of new car sales financed, increasing from 17.2 p.c. in 1947 to 29.6 in 1951 and climbing steeply to 42.8 p.c. in 1952, the year credit restrictions were suspended. The slight drop to 40.4 p.c. evidenced in 1955 was accounted for by a prolonged strike in the automobile industry but the 1956 figure of 46.0 p.c. was the highest on record. In that year 498,061 new vehicles of all kinds were sold, having a retail value of \$1,450,835,000; of these, 221,413 vehicles were financed to the value of \$512,165,000. In addition, 428,784 used vehicles were financed to the amount of \$379,690,000.

### New Passenger Car Sales and Financing, 1947-56

Year	Sold		Financed		P.C. of Total Sales Financed	
	No.	Retail Value	No.	Retail Value	No.	Value
		\$'000		\$'000		
1947.....	159,205	283,190	27,409	32,419	17.2	11.4
1948.....	145,655	282,904	29,923	37,680	20.5	13.3
1949.....	202,318	412,298	53,185	71,044	26.3	17.2
1950.....	324,903	661,674	97,051	131,003	29.9	19.8
1951.....	275,686	683,183	81,726	110,146	29.6	16.1
1952.....	292,095	725,168	124,879	194,422	42.8	26.8
1953.....	359,172	899,726	146,431	252,160	40.8	28.0
1954.....	310,546	797,554	126,099	230,900	40.6	29.0
1955.....	386,962	1,023,351	156,191	305,069	40.4	29.8
1956 <sup>a</sup> .....	406,663	1,124,788	187,255	403,820	46.0	35.9

*Wholesale Trade.*—Following the completion of the 1951 Census an improved and extended sample of wholesale businesses was selected and estimates of wholesale trade produced for each year since. The field covers wholesalers proper, that is, those firms which perform the function of buying merchandise on their own account for resale and generally warehousing and delivering to customers.





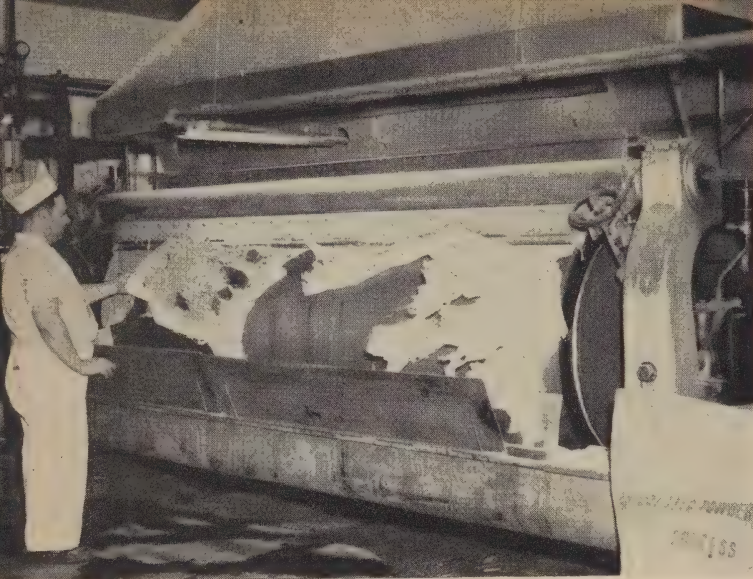
Modern facilities are required to service the mammoth trucks that pound along Canada's highways and are an integral part of the motor transport business. This new \$500,000 truck service centre is a section of one company's long-range expansion program to keep pace with the growth in the trucking industry.

### Estimates of Wholesale Sales, by Trade, 1951-55

Kind of Business	1951	1952	1953	1954	1955
	\$'000,000	\$'000,000	\$'000,000	\$'000,000	\$'000,000
Fresh fruits and vegetables.....	183.4	212.4	202.0	211.2	217.5
Groceries and food specialties....	883.3	909.3	945.0	1,036.2	1,139.7
Meat and dairy products.....	173.1	162.4	171.7	171.1	164.2
Clothing and furnishings.....	85.2	89.3	88.9	80.9	86.5
Footwear.....	28.5	29.4	28.4	26.8	29.1
Textile and clothing accessories..	180.2	183.5	180.7	174.2	183.6
Drugs and drug sundries.....	133.3	140.1	147.7	153.1	165.9
Household electrical appliances..	93.2	125.4	138.2	150.1	167.9
Farm machinery.....	65.7	72.5	71.2	52.1	60.6
Coal and coke.....	226.7	224.5	197.2	179.0	178.4
Hardware.....	266.9	261.6	268.8	260.8	283.5
Construction materials, etc.....	515.0	505.9	550.4	546.7	655.3
Industrial and transportation equipment and supplies.....	437.0	536.5	533.5	462.2	571.9
Commercial, institutional and service equipment and supplies..	72.6	78.0	83.0	89.3	99.0
Automotive parts and accessories..	246.8	263.5	269.3	262.0	352.3
Newsprint, paper and products..	212.6	226.3	236.8	249.5	264.2
Tobacco, confectionery and soft drinks.....	457.5	524.9	504.6	498.5	509.8
All other.....	1,483.4	1,460.7	1,625.5	1,458.8	1,620.1
<b>Totals, All Trades.....</b>	<b>5,744.4</b>	<b>6,006.2</b>	<b>6,242.9</b>	<b>6,062.5</b>	<b>6,749.5</b>

### Co-operative Associations

Co-operative enterprise has played and continues to play a considerable role in many aspects of Canada's economic expansion. Co-operatives first became established where private resources were too limited to meet the needs of pioneer life. Sometimes it was the marketing problem that found solution in the type of large-scale co-operatives exemplified in the wheat pools of Western



Skim milk comes off the drying rollers in a Quebec co-operative ready for bottling. A million pounds of milk are processed each year in this co-operative, which emerges as butter, cheese and powdered skim milk. In addition, it operates a flour mill and a feed machinery age.

Canada; sometimes it was small local ventures in co-operative processing among fruit growers or fishermen; sometimes it was consumer co-operatives which, in the face of depression, passed on to their members most of the retail margin in the form of patronage dividends.

Co-operative activity in marketing has, since early in the century, been an integral feature of Canadian agriculture, particularly in the mid-West where wheat growers formed elevator companies and built or purchased hundreds of local elevators as well as the great terminals at Fort William-Port Arthur and Vancouver through which is handled half of the western wheat crop. Co-operatives have become progressively prominent also in the marketing of livestock, dairy products, wool and honey as well as in the purchase of farm machinery, feeds, repair parts, motor fuel, etc.

A continuing effort is made to obtain financial and operating statements from all co-operatives in Canada and for the year ended July 31, 1955 a total of 2,522 marketings, purchasing and service co-operatives reported a membership of 1,410,209 and business of \$967,177,886 for the year. The value of farm products marketed was a little over \$704,000,000, about \$32,000,000 less than in 1953-54. Sales of merchandise by co-operatives were also down slightly, amounting to \$228,000,000 as compared with \$234,000,000. It is estimated that co-operative associations market about 30 p.c. of all agricultural products entering commercial trade.

In addition to the local co-operatives, nine co-operative wholesale societies operating in Canada in 1954-55 reported business amounting to a little over \$190,000,000. Sales of farm supplies and merchandise accounted for more than one-half of this amount, or \$102,000,000, and sales of farm products for \$62,000,000. Livestock handled on a commission basis had a value of \$25,000,000.

In 1954-55, 86 fishermen's co-operatives with a membership of 10,167 reported sales of fish amounting to \$11,882,733 and sales of fishermen's supplies amounting to \$2,418,452.



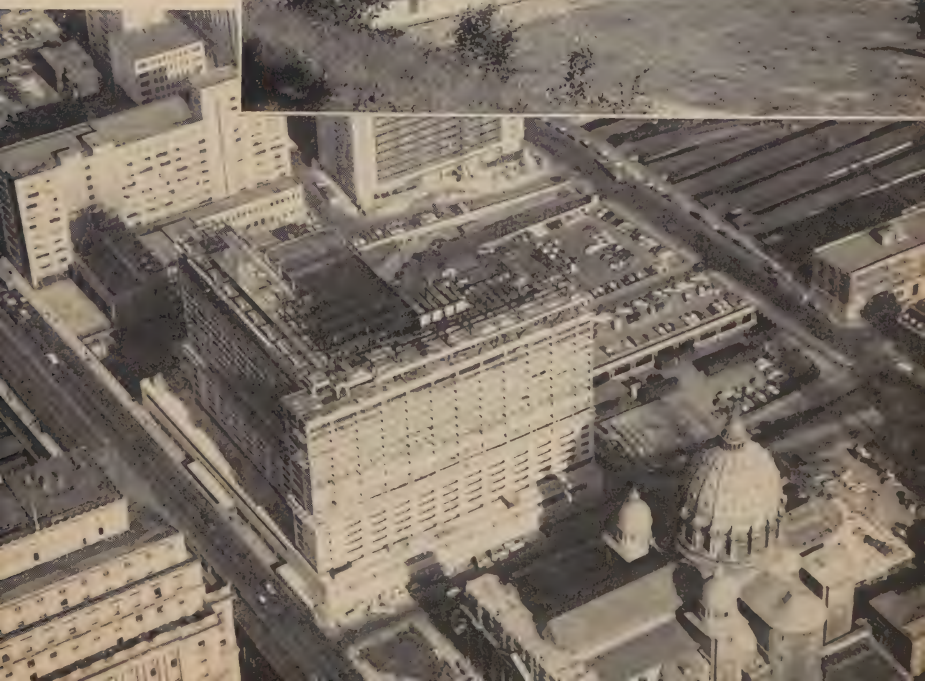
A miscellaneous group of 495 co-operatives providing such services as medical insurance, housing, transportation, electrification, custom grinding and seed cleaning reported membership of 200,234 and revenue of \$11,393,429.

*Credit Unions.*—The growth of the credit union movement in Canada has been quite phenomenal in the past decade. Credit unions are co-operative savings and loan associations with a stated common bond of membership. Their object is to help the members help themselves to financial security and they do it by making savings a community effort and by giving one another low-cost loans. A membership of about 152,000 at the beginning of the War increased to 1,736,817 at the end of 1955 when 3,903 unions with assets of \$654,000,000 were in operation. Loans to members in that year totalled \$249,000,000 and the savings of all credit union members amounted to \$408,000,000. Member shares had a value of \$193,000,000.

Active motels, now appearing on all main highways, are popular with summer motorists but those close to commercial centres are used year round.



Queen Elizabeth Hotel in the heart of Montreal, one of the 23-acre railway terminal development which has been a major CNR objective for many years.





## Prices

**Wholesale Prices.**—The general wholesale price index advanced throughout 1956 at about the same rate as in 1955, so that the December 1956 index was 3 p.c. above the index for December 1955, which in turn was 2.8 p.c. above that for December 1954. In 1956, six of the eight main component groups of the index registered increases of from 2 to 9 p.c. The two decreases reflected particular circumstances which almost outweighed the strength shown by the other six groups. Wood products declined 1.8 p.c. because of reduced receipts for export sales as a result of the premium on the Canadian dollar; the 5-p.c. decrease in non-ferrous metals stemmed from a reaction to the earlier gains in copper but the extent of the decline was partially offset by a substantial year-end increase in nickel. Iron and its products, with an 8.8 p.c. increase, recorded the highest of the advances to continue a trend that began in mid-1955. Animal and vegetable products increased in 1956 for the first time in several years, the 6.6-p.c. advance in animal products comparing with a 3.8-p.c. rise in vegetable products. The relative volatility displayed by the two indexes was consistent with their behaviour during the 1951-55 period when animal products declined much more sharply than vegetable products. Non-metallic minerals advanced 5.5 p.c. over the same period. The other two groups—chemicals and textiles—recorded somewhat smaller increases of 1.7 p.c. and 3.3 p.c., respectively, during 1956.

Residential and non-residential building materials advanced to new postwar peaks in 1956. The mid-year increase in steel prices was reflected in a number of groups while important advances were also reported for roofing materials, lath and plaster, and brick and stone. Copper component items reflected rapid downward shifts in the price of copper.

### Annual and Monthly General Wholesale and Special-Purpose Price Indexes, 1952-56

(1935-39=100)

NOTE.—All 1956 indexes and Canadian farm products indexes subsequent to July 1955 are subject to revision.

Period	General Wholesale Prices	Raw and Partly Manufactured	Fully and Chiefly Manufactured	Canadian Farm Products	Residential Building Materials	Non-residential Building Materials (1949=100)
1952.....	226.0	218.7	230.7	250.2	284.8	123.2
1953.....	220.7	207.0	228.8	221.6	282.6	124.4
1954.....	217.0	204.8	224.2	211.8	277.5	121.8
1955.....	218.9	209.7	224.5	209.7	283.4	123.4
1956—January.....	222.0	212.9	227.3	197.6	289.9	126.3
February.....	222.2	213.4	227.4	196.8	289.9	126.5
March.....	223.3	214.7	228.3	198.4	291.6	127.0
April.....	224.5	216.2	229.4	201.2	293.7	127.1
May.....	225.3	217.3	230.3	208.6	294.4	127.2
June.....	226.5	219.2	231.3	218.0	294.1	127.5
July.....	226.6	219.0	231.6	227.5	293.9	127.1
August.....	227.0	217.0	233.3	214.4	293.8	129.3
September.....	227.4	216.2	234.3	209.8	293.5	129.4
October.....	227.1	214.4	234.8	208.0	293.5	129.5
November.....	226.6	213.5	234.6	209.4	293.3	129.3
December.....	228.1	216.4	235.3	210.3	292.7	129.6

**Consumer Prices.**—The DBS consumer price index is constructed to measure the influence of price change on the cost of living of a representative cross-section of Canadian families. The index budget contains 224 items which were selected on the basis of a 1947-48 survey to represent expenditures made by Canadian urban families with the following characteristics: (1) living in 27 Canadian cities with over 30,000 population; (2) ranging in size from two adults to two adults with four children; (3) with annual incomes during the survey year ranging from \$1,650 to \$4,050. These items are priced with varying frequency in from 10 to 33 cities, and the average price change of each commodity and service is combined with the average price change of other items, according to the relative importance of purchases on the items as determined from the survey. The index is a measure of price change only and increases or decreases in other factors affecting the cost of living do not influence it.

In 1956 a series of increases from May onward pushed the index above the previous postwar peak of 118.2 in January 1952 and by December it had reached 120.4. Between 1952 and May 1956 there had been a number of divergent movements in the component groups but these had offset each other to a considerable degree, giving the impression of an absence of movement at the total level. During the last half of 1956, however, the index advanced nearly every month. Food was the component group most responsible for raising the total index—it climbed from 109.3 in May to 117.9 in November, almost 8 p.c. Perhaps half of that increase was seasonal in nature but higher prices were in evidence for many individual items, including such basic foods as bread and milk.

The index of other commodities and services rose more during the year than it had for several years previously. Higher prices were spread through such varied items as new cars and men's haircuts. Household operation, which hovered around 117 from 1952 to 1955, reached 118.6 in December. Fuel, utensils and equipment and furniture increases contributed to the rise. The clothing index was the only one of the major components to show an over-all decline in the 1952-56 period.

### Consumer Price Index Numbers, 1952-56

(Av. 1949 = 100)

Year and Month	Food	Shelter	Clothing	House- hold Operation	Other Commo- dities and Services	Total
1952.....	116.8	120.2	111.8	116.2	116.0	116.5
1953.....	112.6	123.6	110.1	117.0	115.8	115.5
1954.....	112.2	126.5	109.4	117.4	117.4	116.2
1955.....	112.1	129.4	108.0	116.4	118.1	116.4
1956.....	113.4	132.5	108.6	117.1	120.9	118.1
1956—January.....	111.5	131.3	108.6	116.5	119.0	116.8
February.....	109.9	131.5	108.6	116.7	119.3	116.4
March.....	109.1	131.6	108.7	116.8	119.9	116.4
April.....	109.7	131.9	108.7	116.6	120.1	116.6
May.....	109.3	132.1	108.8	116.5	120.5	116.6
June.....	112.5	132.6	108.6	116.7	120.6	117.8
July.....	114.4	132.7	108.6	116.7	121.1	118.5
August.....	115.9	133.0	108.4	116.8	121.3	119.1
September.....	115.5	133.1	108.4	117.1	121.4	119.0
October.....	117.4	133.3	108.5	117.7	121.6	119.8
November.....	117.9	133.4	108.4	118.1	122.8	120.3
December.....	117.5	133.5	108.6	118.6	122.9	120.4



Sixty percent of the wheat grown in Canada is exported, either as grain or as flour. Perhaps a fifth of the production is milled into flour, half of which leaves the country. Of the wheat used domestically, about a third is used for human food and the remainder for animal feed, seed and other purposes.



# Foreign Trade

CANADA'S foreign trade soared to new heights in 1956. The value of exports was about 12 p.c. higher than in 1955, exceeding by almost the same percentage the previous record in 1952, and the value of imports surpassed the 1955 peak by 21 p.c. Since average prices of foreign sales and purchases advanced only moderately, most of the value of increase in foreign trade was attributable to a larger volume of shipments. Imports were higher than exports during 1956 and the import balance on merchandise trade more than doubled.

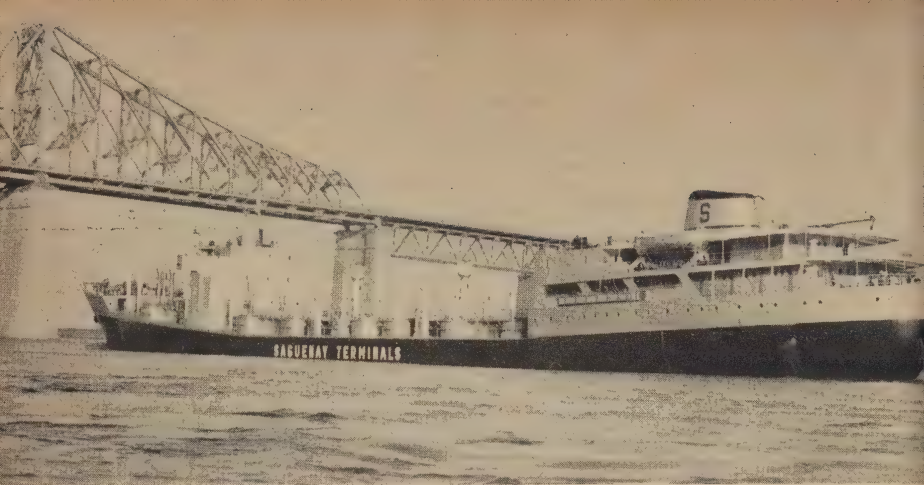
The rising flow of imports is a definite reflection of the almost continuous expansion that has characterized the Canadian economy in the postwar period. The pace of activity quickened in 1955 and 1956—the national production showed its largest increases, consumer expenditure was very high, house-building substantial and capital investment outlays for industrial construction and equipment became the most important expansionary element. Unprecedented progress in the exploration and development of Canada's natural resources, resolving into brisk construction of new processing plants and transport facilities strongly contributed to the greatly increased demands for many types of industrial and other machinery and equipment. Such items accounted for about one-third of the total imports in 1956 and close to two-fifths of their increase over 1955. At the same time, this great activity in the mining and industrial fields has contributed to the high level of exports, most clearly reflected in the recent upsurge in foreign sales of such 'new' exports as oil, iron ore and uranium.

## Exports, Imports and Total Trade of Canada, 1951-56

(Millions of Dollars)

Year	Exports			Imports	Total Trade	Balance of Trade
	Domestic Produce	Foreign Produce	Total			
1951.....	3,914.5	48.9	3,963.4	4,084.9	8,048.2	-121.5
1952.....	4,301.1	54.9	4,356.0	4,030.5	8,386.4	+325.5
1953.....	4,117.4	55.2	4,172.6	4,382.8	8,555.4	-210.2
1954.....	3,881.3	65.6	3,946.9	4,093.2	8,040.1	-146.3
1955.....	4,281.8	69.5	4,351.3	4,712.4	9,063.7	-361.1
1956.....	4,789.7	73.4	4,863.1	5,705.4	10,568.6	-842.3

**International Background.**—The upward trend of Canada's foreign trade in the postwar years has taken place in a generally favourable economic and institutional climate. There has been a striving toward the solving of international trade and payment problems in an orderly and undiscriminatory fashion, within the framework of such new and diverse international institutions as the various economic agencies of the United Nations, the International Monetary Fund, the World Bank for Reconstruction and Development, the General Agreement on Tariffs and Trade, and the Organization for European Economic Co-operation. Canada has taken an active part in most of these organizations.



*A new-type bulk carrier leaving Montreal with 10,400 tons of grain for the United Kingdom. She is one of a fleet of 101 freighters established in the wake of Canada's swiftly expanding aluminum industry, transporting bauxite and alumina from British Guiana, Jamaica and the Los Islands of French West Africa to Quebec and British Columbia smelters and returning by different routes with Canadian goods for the United Kingdom, Europe and the Caribbean.*

The initial difficulties of the postwar years, caused by wartime destruction and the disruption of production and trade, was overcome in a relatively short time thanks to the immediate assistance extended to the war-damaged nations both through international organizations and on a unilateral basis, especially by the United States but also by Canada. Despite a number of cyclical adjustments and particularly the boom and collapse in raw materials resulting from the Korean war, the expansionary forces in the world economy were strong enough to produce, between 1948 and 1955, an estimated increase of about two-fifths in the combined total world commodity production in manufacturing, mining and agriculture. There has been widespread economic development in the postwar decade, notwithstanding a number of as yet unsolved problems associated with inflationary trends, the unevenness of economic growth among various countries and the difficulties stemming from the perhaps temporary agricultural surpluses in certain commodities, including wheat which is of particular interest to Canada. The total gold and dollar reserves of the countries of the free world other than the United States have shown a steady increase since 1952. Also some relaxation has been made of impediments to trade but the easing of quantitative controls and the tariff reductions have been concentrated on industrial materials and capital equipment rather than on foodstuffs and consumer manufactures, whose movement in international trade is still far from unrestricted.

World trade, which by 1948 reached its prewar level, rose between 1948 and 1955 by about three-fifths at a rate exceeding the increase in world production. The 1955 total exceeded the previous record of 1951 by about 9 p.c. in value and, in view of the decline in the average world price level since that year, by over 18 p.c. in volume. In 1956 world trade surpassed the level of 1955 by 10 p.c. in value and somewhat less in volume. Canada's share of world trade in the postwar period has fluctuated between 5 p.c. and

6 p.c. In most postwar years only the United States and the United Kingdom surpassed Canada as a top-ranking world trader. But in 1954 the Federal Republic of Germany regained its prewar position as the world's third trading nation and maintained this rank in 1955 and 1956. On a per capita basis, however, Canada's foreign trade exceeds by far that of most other leading countries in international trade.

### Leading Countries in World Trade, 1954 and 1955

NOTE.—Countries ranked by total trade and total trade per capita in 1955. Sources of data: Trade—International Monetary Fund; Population—United States Statistical Office.

Country	Exports, f.o.b.		Imports, c.i.f.		Total Trade	
	1954	1955	1954	1955	1954	1955
VALUE OF TRADE (Millions of United States Dollars)						
United States.....	15,110 <sup>1</sup>	15,553 <sup>1</sup>	11,108	12,368	26,218 <sup>1</sup>	27,921 <sup>1</sup>
United Kingdom.....	7,771	8,468	9,447	10,881	17,218	19,349
Germany, Federal Republic of....	5,248	6,135	4,571	5,793	9,819	11,928
Canada.....	4,427	4,763	4,549	5,165	8,976	9,928
France.....	4,181	4,798	4,221	4,688	8,402	9,486
Netherlands.....	2,414	2,688	2,858	3,208	5,272	5,896
Belgium and Luxembourg.....	2,300	2,776	2,535	2,830	4,835	5,606
Italy.....	1,638	1,857	2,439	2,706	4,077	4,563
Japan.....	1,629	2,011	2,399	2,471	4,028	4,482
Australia.....	1,656	1,730	1,869	2,160	3,525	3,910
World Trade <sup>2</sup> .....	77,417	84,148	79,415	88,898	156,832	173,046
TRADE PER CAPITA (United States Dollars)						
New Zealand.....	326	334	329	371	655	706
Canada.....	291	305	299	331	591	636
Belgium and Luxembourg.....	252	303	278	308	530	611
Switzerland.....	249	263	264	299	513	562
Netherlands.....	228	250	269	299	497	549
Sweden.....	219	238	246	274	466	512
Norway.....	172	185	300	318	472	503
Venezuela.....	297	331	176	172	473	503
Denmark.....	215	235	264	264	479	499
Sarawak.....	232	256	217	236	448	492

<sup>1</sup> Includes military aid extended to other countries. <sup>2</sup> Exclusive of China, U.S.S.R. and eastern European countries not reporting trade currently.

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**Canadian Trade Trends.**—The decline in Canadian exports in 1953 and 1954 resulted mainly from reduced foreign markets for grains, especially wheat. The recovery in 1955 was entirely due to strong demand in the United States and overseas for commodities other than grains, the latter continuing their decline but at a reduced rate as compared with 1954. Forest products and minerals made the greatest contribution to the 1955 increase. There were gains in all the principal wood products, planks and boards registering the greatest value increase for any individual export commodity. Iron ore showed the largest absolute and relative gain among the base metals, reflecting new capacity and a full year of shipments from the Quebec-Labrador mines, and there were considerable increases for nickel and copper. Exports of aluminum went up substantially, supply being enhanced by the completion of the first phase of the Kitimat project. There was also a sizable gain for asbestos, and exports of petroleum advanced very sharply, showing by far the greatest relative increase among Canada's leading exports.

The marked recovery of wheat sales and, to a lesser extent, of other grains was the outstanding feature of Canada's exports in 1956, wheat contributing about one-third of the total export gain. This development primarily reflected unusual sales to certain Soviet countries (Russia, Poland, Czechoslovakia and Hungary) as well as substantial increases to most of the regular European markets. Forest products, on the other hand, did not quite hold their own in 1956, owing almost entirely to reduced shipments of planks and boards which reflected primarily lower shipments to the United Kingdom and in part a falling off in residential construction in the United States during the year. However newsprint paper remained Canada's leading export, a position it has held in almost every postwar year. Except for lead and silver, there were gains for all the leading non-ferrous metals and products, such as aluminum, nickel, copper, zinc, unmanufactured platinum metals and electrical apparatus, but the group as a whole did not maintain its rate of increase of the previous year. In the transportation equipment field there was a considerable gain for passenger cars and sales of aircraft showed the second

largest relative increase among export commodities. Exports of uranium were almost twice as great as in 1955. Shipments of iron ore, four-fifths of which was sold in the United States, went up substantially. Petroleum had the largest absolute and relative rise of all export items. The bulk of it went by pipeline to the expanding markets in the midwestern and northwestern States, but there also took place significant off-shore shipments by tanker from Vancouver to California.

The decline in imports in 1954 was fairly widespread but affected, especially strongly, machinery and equipment and textiles. However, stimulated by the recovery of business activity, an import record was set in 1955 and bettered by one-fifth in 1956. In those two years, the requirements of the industrial expansion, especially in resource development projects, and the demands generated by the generally high levels of employment and income combined to produce a steadily and sharply increasing rate of purchases from abroad. The import recovery in 1955 was shared by most leading commodities. Particularly large increases were registered by some of the imports which declined sharply in the previous year, such as automobiles and parts, rolling-mill products and tractors. There were also substantial gains in engines as well as in industrial machinery which had only a moderate decline in 1954, the lowest among the leading iron and steel products. The iron and steel category is by far the largest among the nine main component material groups and comprises mainly industrial, farm and transport machinery and equipment, and primary and construction steel products. This

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*Contrecoeur, on the south shore of the St. Lawrence River 26 miles east of Montreal, is the transshipment point for iron ore from the Quebec-Labrador mines. Here the ore is transferred from deepwater freighters either to small canal vessels for shipment through the St. Lawrence canals or to freight cars for transportation by rail to the United States. Seventy cars, each carrying 60 tons, leave daily for Ohio steel mills.*







*Light Canadian aircraft are in service in many parts of the world. An air taxi operating between Cleveland, Ohio, and Detroit, Michigan, uses Canadian-built Otters.*

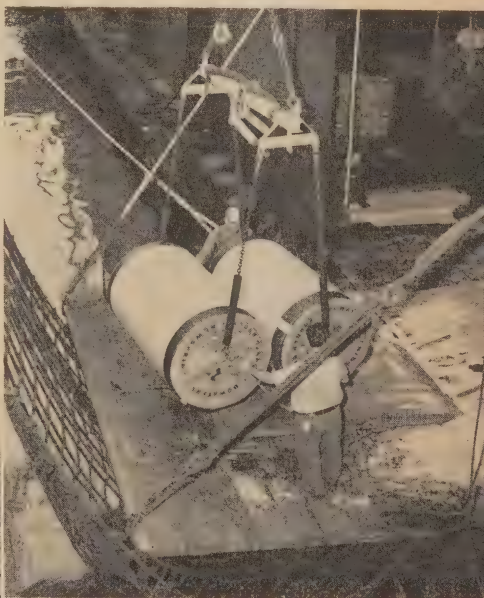
group therefore tends to respond very sensitively to the upswings and downswings in domestic economic activity. Thus in 1954 iron and steel contributed about two-thirds of the total fall in imports, with a rate of decrease more than twice that of the import total; in 1955 the group rose at a rate half again as great as that in total imports and in 1956 at a rate almost twice as high—accounting, respectively, for 45 p.c. and over 60 p.c. of the total import gain. In 1956 every leading iron and steel commodity showed an increase. Pipes, tubes and fittings, which were the only main iron and steel product to register a decline in 1955, had the largest percentage rise of all the principal import items, owing to the resumption of activity in oil and gas pipeline construction. Very sharp advances were also shown by rolling-mill products, automobiles, tractors and industrial machinery.

**Leading Trading Partners.**—The United States is Canada's leading trading partner by a wide margin. Exports to the United States consist chiefly of industrial materials, especially such forest products as newsprint, wood pulp and lumber, such minerals as nickel, copper, aluminum, zinc, iron ore and asbestos and recently uranium and petroleum. Exports of whisky, fish, fertilizers and farm implements are also of considerable importance. Imports from the United States comprise mainly manufactured goods such as industrial, farm and transport machinery and equipment and electrical apparatus. But purchases of chemicals, liquid and solid fuels and of certain products not available in Canada, for example cotton and citrus fruits, are also made in significant quantities. Over the past thirty years there has taken place a sharp increase in the importance of the United States as a market for Canadian products, that country's share of Canada's export total rising from some 40 p.c. to about 60 p.c. The share of the United States in imports into Canada has been even greater, increasing from less than 70 p.c. to close to three-quarters of the import total.



The United Kingdom ranks second as both an export market and a source of imports. Principal exports to that country include grains, especially wheat, non-ferrous metals and forest products, while imports consist mainly of manufactured goods such as textiles and certain types of machinery, equipment and electrical apparatus. In contrast to the expansion of trade with the United States, Canada's trade with the United Kingdom has diminished in relative importance over the past thirty years. Exports, although larger in absolute terms have fallen from about one-third to about one-sixth of the Canadian export total. The contraction of the United Kingdom market for grains, dairy products and cattle and for bacon and fish has accounted for most of this relative decline. Imports from the United Kingdom have also shown a value increase over the same period but have decreased from about one-seventh to about one-twelfth of the Canadian import total.

*Newsprint from Newfoundland being unloaded at New York.*



*A Canadian tractor does a hauling job on a Brazilian sugar plantation.*



*Canadian Douglas fir used in the construction of trusses a warehouse at Liverpool, England.*



Canada's trade with most European countries and with Japan is similar in character to that with the United Kingdom. Manufactured goods are of greater importance in sales to Latin America and to many Commonwealth countries, while imports from those two areas consist largely of primary commodities which are not produced at all in Canada. But the volume of trade with the rest of the world is not large enough to alter the broad pattern set by the exchange of goods with the United States and the United Kingdom.

### *Domestic Exports to Leading Countries, 1952-56*

NOTE.—Countries ranked by value of exports in 1956.

Country	1952	1953	1954	1955	1956
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,306,955	2,418,915	2,317,153	2,559,343	2,818,655
United Kingdom.....	745,845	665,232	653,408	769,313	812,706
Germany, Federal Republic of...	94,863	83,858	86,899	90,751	134,098
Japan.....	102,603	118,568	96,474	90,893	127,870
Union of South Africa.....	47,852	50,763	39,883	56,026	64,616
Belgium and Luxembourg.....	104,376	69,510	54,987	53,384	57,852
Norway.....	39,002	37,278	43,813	47,031	57,682
Netherlands.....	41,508	42,382	39,777	47,689	54,559
France.....	48,264	32,281	33,799	42,563	53,156
Australia.....	49,679	39,629	45,768	58,482	47,747
Mexico.....	39,641	28,986	27,359	37,126	39,385
Italy.....	52,645	33,170	23,844	27,653	37,744
Venezuela.....	35,683	36,485	30,973	30,756	34,335
Switzerland.....	26,918	29,833	26,826	25,640	33,535
India.....	55,423	37,187	17,689	24,669	25,714
U.S.S.R. (Russia).....	1	1	4,854	2,680	24,606
Czechoslovakia.....	367	123	295	1,062	24,558
Philippines.....	16,045	13,872	15,863	18,136	18,060
New Zealand.....	18,844	7,475	14,807	22,344	17,995
Poland.....	69	183	558	4,005	17,918

<sup>1</sup> Less than \$500.

### *Imports from Leading Countries, 1952-56*

NOTE.—Countries ranked by value of imports in 1956.

Country	1952	1953	1954	1955	1956
	\$'000	\$'000	\$'000	\$'000	\$'000
United States.....	2,976,962	3,221,214	2,961,380	3,452,178	4,161,667
United Kingdom.....	359,757	453,391	392,472	400,531	484,679
Venezuela.....	135,758	155,147	167,594	187,277	208,401
Germany, Federal Republic of...	22,629	35,507	44,485	55,603	89,348
Japan.....	13,162	13,629	19,197	36,718	60,826
Belgium and Luxembourg.....	33,216	29,082	25,077	29,051	52,728
Mexico.....	23,937	15,785	14,033	28,814	41,699
Netherlands Antilles.....	11,747	8,154	20,582	30,722	38,119
Brazil.....	35,103	35,047	31,623	30,747	34,832
France.....	19,117	22,267	22,046	25,016	32,600
India.....	26,822	26,627	28,054	35,147	30,898
Malaya and Singapore.....	25,473	21,896	19,586	28,810	28,558
Australia.....	18,712	23,464	24,657	26,295	26,310
Italy.....	11,735	14,271	15,006	18,502	24,967
Arabia.....	7,559	2,196	2,225	6,986	24,712
Jamaica.....	9,204	11,761	15,309	15,567	24,633
Netherlands.....	16,495	22,298	22,562	20,951	23,776
Colombia.....	18,004	23,215	24,820	22,220	23,056
Switzerland.....	16,396	20,437	19,151	19,365	22,301
British Guiana.....	23,660	17,800	20,482	18,307	20,498



*Canadian-built F-86 Sabre jets are a major element in the air defence of the free world. They are in service with the Royal Canadian Air Force in Europe, the Royal Air Force and the Air Forces of Greece, Turkey, South Africa, Colombia and West Germany and saw action with the United States Air Force over Korea. Late in 1956, West Germany placed an order for 225 Sabres plus spare and ground handling equipment. The order, which includes 400 Orenda engines, is valued at \$75,000,000. The RCAF will train 360 German aircrew in Canada to man the aircraft.*

**Changes in the Structure of Trade.**—The composition of Canada's foreign trade provides an illustration of the influence of climatic and geographical factors on the pattern of Canadian resources and the resulting specialization of production. This country has an abundant supply of certain farm, marine and wildlife products such as grains and their products, cattle, meats, fish and furs. But such products of warmer climates as coffee, sugar, citrus fruits, cotton and rubber have to be imported. Minerals are assuming an increasingly important place in exports. Canada produces most of the world's nickel and asbestos, is one of the leading producers of gold (which for special reasons is not included in merchandise export statistics), uranium, copper, zinc and lead, and is also in the process of moving into the top ranks in iron ore and petroleum. On the other hand, the total requirements for bauxite, which is transformed into aluminum by the application of hydro-electric power, have to be imported as well as a large proportion of the domestic consumption of coal and petroleum. Canada's vast stands of timber, chiefly of softwood species, provide lumber, pulpwood, wood pulp and



newsprint for world markets. Only a very limited quantity of wood and wood products needs to be imported, the latter mostly in manufactured form such as books, magazines and newspapers.

Canada's exports have been traditionally concentrated on a relatively narrow range of primary products, and the industries which form their backbone continue to be based on farm and fishery, forest and mineral resources. Nevertheless, there is gradually taking place some diversification of exports with an increasing share being assumed particularly by forest products and minerals. In the late 1920's agricultural and animal products jointly constituted about 58 p.c. of the value of Canadian exports, but in the early 1950's their share declined to only 31 p.c. On the other hand, over the same period the share of forest products increased from 23 p.c. to about 34 p.c. and that of non-ferrous metals and non-metallic minerals together from almost 10 p.c. to 20 p.c. Canada is now one of the world's most important exporters of basic metals and other raw materials used in the more complex types of industry and is in the process of becoming a major exporter of petroleum.

In line with these trends, some significant changes have taken place in the list of Canada's leading exports since the 1920's. Wheat has been displaced from first rank by newsprint, and its share of the export total has fallen from close to 30 p.c. to about 12 p.c. Such formerly important exports as cheese, furs, rubber tires, silver, bacon and cattle are now of relatively small significance. New leaders include aluminum, zinc, fresh and frozen fish, fertilizers, industrial machinery and, starting in 1955, iron ore, petroleum and uranium. In addition to newsprint and wheat, such commodities as lumber, wood pulp, nickel, copper, barley, wheat flour, asbestos, farm implements, whisky, pulpwood and lead were among the leading exports in both periods. Of these commodities all except wheat, wheat flour and whisky increased their relative share of the export total, but only about one-half retained the same relative ranking.

Imports into Canada have always been less concentrated on a few commodities and more diversified than exports. Imports comprise raw materials for industry, required to supplement domestic resources, and an infinite variety of both consumer and producer manufactures. Among the latter, purchases of machinery and equipment have stood out prominently in every phase of Canada's economic history, particularly in recent years. Significant changes have also taken place over the past thirty years in the composition of imports. The proportion of agricultural and animal products declined from about 24 p.c. of total imports in the late 1920's to about 15 p.c. in the early 1950's, and the share of textiles fell from 17 p.c. to about 9 p.c. Non-ferrous metals and non-metallic minerals together increased their proportion of the import total from about 21 p.c. to about 24 p.c. The share of iron and steel products rose from 25 p.c. to 34 p.c., industrial machinery accounting for less than one-fifth and over one-quarter, respectively, of the group. Imports of fully and partially manufactured goods together increased from 74 p.c. to 79 p.c. and of fully manufactured alone from 65 p.c. to 73 p.c.

The list of the leading imports has also undergone some important changes since the 1920's. No longer included are such products as anthracite coal, natural rubber, gasoline, corn, wool and silk fabrics and miscellaneous textile apparel, while new entries consist of aircraft, fuel oils, tourist purchases,

coffee, pipes, tubes and fittings, non-commercial items (mainly settlers' effects) and principal chemicals. On the other hand, many of today's chief imports have been leaders for years, such as industrial machinery, crude petroleum, automobile parts, electrical apparatus, rolling-mill products, tractors, engines, bituminous coal, farm implements, cotton and cotton products, passenger automobiles, and raw sugar.

### Principal Domestic Exports, 1952-56

NOTE.—Commodities ranked by value of exports in 1956.

Commodity	1952	1953	1954	1955	1956
	\$'000	\$'000	\$'000	\$'000	\$'000
Newsprint paper.....	591,790	619,033	635,670	665,877	708,385
Wheat.....	621,292	567,907	375,339	338,216	513,081
Planks and boards.....	295,949	282,103	324,724	385,313	326,445
Wood pulp.....	291,863	248,675	271,418	297,304	304,536
Aluminum, primary and semi-fabricated.....	155,106	173,378	182,392	210,971	234,806
Nickel, primary and semi-fabricated.....	150,982	162,542	182,154	215,169	222,909
Copper, primary and semi-fabricated.....	100,806	117,351	127,334	163,924	194,206
Iron ore.....	22,333	30,843	39,719	99,814	144,443
Petroleum, crude and partly refined.....	3,452	6,228	6,318	36,253	103,923
Asbestos, unmanufactured.....	86,510	83,973	82,566	94,804	99,895
Barley.....	145,684	136,729	89,363	76,461	94,977
Zinc, primary and semi-fabricated.....	96,283	57,572	58,392	70,558	74,011
Wheat flour.....	116,055	102,160	88,029	74,442	71,549
Whisky.....	54,254	63,086	59,156	60,682	68,660
Farm implements and machinery (except tractors) and parts....	95,692	67,821	70,819	72,206	63,937
Fish, fresh and frozen.....	52,852	51,219	56,650	55,263	59,594
Pulpwood.....	64,820	45,859	45,766	48,655	49,794
Aircraft and parts (except engines).....	37,503	40,247	28,442	19,906	49,545
Fertilizers, chemical.....	42,293	42,633	42,342	56,296	49,211
Machinery (non-farm) and parts.	49,192	38,618	38,172	35,789	47,130

Products of southern climes must necessarily be imported into Canada, spice among them. This new Canadian from India packages spices that have come in bulk from her native land.



## Principal Imports, 1952-56

NOTE.—Commodities ranked by value of imports in 1956.

Commodity	1952	1953	1954	1955	1956
	\$'000	\$'000	\$'000	\$'000	\$'000
Machinery (non-farm) and parts.	360,969	401,856	380,219	445,875	628,521
Automobile parts (except engines)	190,337	222,284	180,433	246,505	284,788
Petroleum, crude and partly refined.....	210,036	213,094	212,787	229,779	271,291
Electrical apparatus.....	139,567	198,275	207,539	226,715	257,292
Rolling-mill products (steel)....	143,133	124,813	97,563	129,679	234,709
Tractors and parts.....	119,253	126,354	82,814	115,375	159,627
Automobiles, passenger.....	49,484	79,454	60,846	83,726	125,539
Pipes, tubes and fittings.....	57,261	58,327	59,680	50,290	123,088
Engines, internal combustion, and parts.....	126,332	107,736	84,914	100,917	120,986
Coal, bituminous.....	99,571	94,680	70,445	74,453	96,516
Aircraft and parts (except engines).....	95,212	111,803	100,397	138,091	91,304
Non-commercial items.....	47,095	60,923	56,763	72,929	83,098
Fuel oils.....	64,908	65,151	70,921	77,754	81,593
Tourist purchases.....	66,682	73,840	68,767	71,467	75,205
Farm implements and machinery (except tractors) and parts....	78,044	82,795	60,351	62,874	72,522
Coffee, green.....	50,775	57,595	64,214	57,010	62,657
Cotton fabrics.....	53,248	55,906	46,012	53,400	62,130
Paperboard, paper and products..	29,921	39,208	43,558	52,690	61,954
Principal chemicals (except acids)	49,824	54,505	46,193	57,677	61,871
Cotton, raw.....	65,956	55,494	52,441	61,031	58,748

## Canadian Balance of International Payments

In addition to foreign merchandise trade, Canada has a variety of other current exchanges of services and capital with other countries. All these economic transactions are presented in statements of the Canadian balance of payments. Exchanges of services and merchandise trade are included in the current account, while the capital account shows the direction and extent of movements of capital between Canada and other countries.

Outstanding among the features of Canada's balance of payments during the past six years are the deficits that have arisen from excess of imports of goods and services over exports of goods and services, and the capital inflows for private investment in industry. The capital inflows have been associated with growth and development and have, in turn, contributed to the current deficits by augmenting demands for imported goods and services. In the 1950's there was a current deficit in each year except 1952 when a combination of special influences contributed to a small surplus. The deficits increased from \$334,000,000 in 1950 to \$692,000,000 in 1955 and rose still further in 1956, the preliminary estimate of \$1,398,000,000 being about double that for 1955. In 1956 the deficit has been larger in absolute terms than in any other year and relatively it compares with deficits in some earlier periods of exceptional development in Canada. The accompanying inflows of long-term capital, financing the deficit in 1956, were three times as high as in the previous year.

Traditionally Canada's deficits with the United States have been offset by surpluses with overseas countries. But the over-all deficits of recent years have been the result of rapidly growing deficits with the United States at a time when surpluses with overseas countries have been declining.



Some of Canada's most important international contacts of mutual benefit to Canadians and to the people of other countries concerned are made through the Canadian Trade Commissioner Service and the Canadian Exhibition Commission, both of which carry on a continuous effort to give world-wide distribution to Canadian goods and to find supplies abroad for Canadian importers. Offices in forty-three countries are staffed with trained Canadian trade officials and commodity specialists who are familiar with every aspect of foreign trade in their geographical or political areas.

Canada was guest of honour and the only foreign country to participate with Switzerland in La Foire Nationale de Lausanne in the autumn of 1956. More than 600,000 persons passed through the Canadian Pavilion in which were displayed Canadian goods ranging from objets d'art to boats and fashions. During 1957 Canada will participate in thirteen international and industrial trade fairs.



The financing of recent large external deficits has occurred with little or no strain on the Canadian balance of payments. The capital inflows which served this purpose were generally of a long-term character reflecting participation in Canadian growth opportunities through direct and portfolio equity investment. These sources of financing were buttressed at times by large increases in foreign-held funded debt in response to divergent interest rate structures in Canada and in the United States. Such differences arose in part from the heavy demands for capital in Canada accompanying the rapid growth. Movements of short-term capital have also occurred on a comparatively large scale, but have generally played a balancing role and the inflows and outflows have, over time, tended to offset each other. The persistent long-term inflows of capital have kept the Canadian dollar at a premium on the world's exchange markets.

**International Investment Position.**—Canada's gross external liabilities amount to over \$16,000,000,000 of which more than half represents foreign investment in Canadian enterprises controlled by non-residents. A substantial part of the remainder covers portfolio investment in Canadian corporations by non-residents. Canada's gross external assets are about \$7,000,000,000 of which \$4,000,000,000 is represented by government loans to overseas countries, subscriptions to international financial organizations, and holdings of gold and foreign exchange. Canada's net foreign indebtedness has grown rapidly in recent years and is now about two and a half times as large as in 1949. It is estimated that during 1956 the growth in Canada's net external debt was approximately \$400 for every family in Canada.

Dependence on external sources for some types of capital, together with the special advantages often associated with this capital, has led in Canada to a degree of foreign ownership and control of industry unique in economic history. By the end of 1953 foreign investment accounted for 59 p.c. of the ownership of the Canadian petroleum industry, and represented control of 70 p.c. The mining industry was also 59 p.c. foreign-owned and 55 p.c. foreign-controlled. Manufacturing other than petroleum refining was 44 p.c. foreign-owned and 46 p.c. foreign-controlled. The degree of foreign ownership and control varied considerably in different branches of manufacturing. Other areas of Canadian wealth such as utilities, merchandising, housing and social capital are, of course, Canadian-owned and controlled to a much larger extent than are the petroleum, mining or manufacturing industries. Since the date to which these ratios relate, foreign long-term investment in Canada has continued to grow at an accelerated rate.

A very substantial part of foreign capital in Canada now takes the form of equity investment and, as a result of the retention of earnings, foreign investments in Canada increase each year by some hundreds of millions of dollars more than the capital actually imported. Indeed, during the postwar years the earnings accruing to non-resident investors but retained in Canada to finance expansion have amounted to about \$3,000,000,000. In addition, there are the actual transfers of investment income which currently take place at an annual rate approaching \$500,000,000. The significant part of the corporate profits in the Canadian economy which accrues to non-residents is a measure of the important place of foreign capital, which has helped to set the unusual pace of the current development.



*Wide is the land and myriad its pleasures—in the bracing coolness by a glacier-fed Rocky Mountain lake, set in a vast amphitheatre of green-clad slopes and snow-capped peaks or on the wave-washed shores of the rolling Atlantic.*

## ***Travel between Canada and Other Countries***

Travel between Canada and the United States, which is greater in volume than that between any other two countries, has been a special feature of contact between the two nations for many years and has played an important part in fostering international goodwill on the level of the ordinary citizen. Convenient communications across the continent-wide border as well as the proximity of large groups of people residing close to the border on both sides have assisted in this tourist movement and as a result the people of Canada and the United States are thoroughly familiar with each other's way of life. Neither passports nor visas are required for these tourists, the majority of whom travel by private automobile.

Recently there has been a deficit in Canada's travel account with the United States. Each year since 1952 expenditures by Canadians in the United States have exceeded expenditures in Canada by visitors from that country, contrasting sharply with the surpluses customary in earlier years.



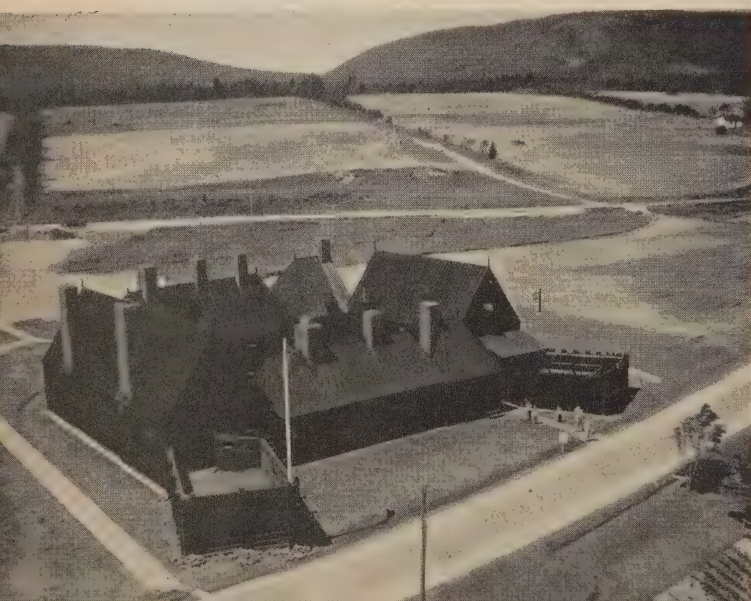
In 1956 expenditures of Canadians amounted to \$391,000,000, exceeding by \$83,000,000 the amount spent in Canada by visitors from the United States.

A very large part of the movement across the border is connected with international commuting and other local visits. The number of longer-term visitors who more properly constitute the tourist trade is a relatively small part of the total traffic but accounts for most of the expenditures. Thus in 1955 the 4,380,000 visitors from the United States who stayed for more than two days spent some \$232,000,000 or 77 p.c. of \$303,000,000 spent by all United States visitors in Canada. The 4,051,000 Canadians visiting the United States for more than two days spent about \$312,700,000, or over 86 p.c. of total expenditures by Canadians of \$363,000,000.

Canadian travel to overseas countries has been increasing substantially each year. The \$106,000,000 spent overseas in 1956 was three times the amount spent in 1951. About one-half of the outlay abroad goes to the United Kingdom, being either spent in that country or on transatlantic transportation provided by British carriers. In 1956 the expenditures of non-resident visitors in Canada were only about one-quarter of the amount of Canadian expenditures overseas.

The balance of payments on travel account between Canada and other countries for 1951-56 were, in millions of dollars:—

<i>Item</i>	<i>1951</i>	<i>1952</i>	<i>1953</i>	<i>1954</i>	<i>1955</i>	<i>1956</i>
Account with the United States—						
Credits.....	258	257	282	283	303	308
Debits.....	246	294	307	320	363	391
Net.....	+12	-37	-25	-37	-60	-83
Account with Overseas Countries—						
Credits.....	16	18	20	22	25	27
Debits.....	34	47	58	69	86	106
Net.....	-18	-29	-38	-47	-61	-79
Account with All Countries—						
Credits.....	274	275	302	305	328	335
Debits.....	280	341	365	389	449	497
Net.....	-6	-66	-63	-84	-121	-162



To enter the g of the Port Ro Habitation Nova Scotia is step back to beginning of 17th Century—the birth of C ada. It stands the site of original Hab tion, the first tlement of w people in Ame north of the C of Mexico.



The glories of the present found in the solitude of the green forests and rushing streams so numerous in Eastern Canada—the glories of the past brought to life in pageantry and colour at Fort Henry, a thrilling reconstruction of early military days at Kingston, Ontario.



Summer and winter, the wondrous spectacles of nature across this vast land call to the vacationer—the wind-eroded hoodoos in the bad-lands of Alberta or the white and frozen hills of the beautiful Gatineau district of Quebec.







Canada's super-transcontinental trains roll all the way from coast to coast, carrying their passengers in comfort and luxury through the magnificence of the country. The station platform at Banff, Alberta, springs into activity when CPR's "Canadian" makes its customary stop at the mile-high National Park.



# Transportation

**T**HERE are many types of transport facilities required to meet the needs of this tremendously active industrial country where trading is no longer localized but spread over great distances and where speed is such an important factor in the movement of goods and people. Efficient means of transport are as important to the economic well-being of the nation as are means of production—more often than not the production would not exist without the transport facilities.

Rail, air, water and land routes knit the vast expanse of Canada together, providing supply and communication networks from Atlantic to Pacific and from the United States border to the far north. The physical and financial problems that have been encountered, and to a great extent solved, in building up and maintaining these facilities have been almost incalculable. It has been a mammoth task, particularly during the past fifteen or twenty years, to keep abreast of the rapidly growing market and movement requirements of the country and at the same time to take advantage of the multitude of new developments and technological advances made available during that time. But it has been done.

Canada's railways, still the country's principal facility of mass movement, are meeting the challenge of growing competition from other types of transport by following a continuing program of modernization and expansion, by streamlining their services and catering to special local needs. The airlines, specialists in speed of movement and thus having a definite advantage in the transport of passenger, mail and perishable traffic, are constantly increasing the extent and efficiency of service between the main centres of population and have become invaluable in the communication requirements of the northern hinterland. In international service the two major airlines cover one of the longest route patterns in the world and improvements and additions now in process will enable them to maintain their position in this highly competitive field.

*Immense railway yards at Winnipeg, the geographical centre of the nation, where all eastern and western rail movement meets and passes onward to its destination.*





The Pacific Great Eastern Railway, owned by the British Columbia Government, is driving 790 miles of track diagonally across the Province, opening up to settlement and industry a vast hidden empire and extending interminably the already booming economy of Canada's West Coast. The Vancouver-Squamish link completed in 1956 was one of the toughest railroad-building jobs ever undertaken. More than half of its 41 miles was blasted out of solid rock or threaded through tunnels.



The completed route to Prince George has given the historically colourful Cariboo district its first direct rail connection with the markets of Vancouver and the Western United States. The interior of British Columbia is one of the few places in North America where cattle are still driven as far as 200 miles to market. There too this aspect of life will pass into history—the railway has come through.

By 1958 the rail will reach the fabulous Peace River district—terminating at Fort St. John and Dawson Creek. This is a land of many treasures where extension of agriculture awaits the settler. It is known to have reserves of asbestos, silver, copper and mercury, is estimated to contain one-eighth of the world's coal reserves and has a very high potential in oil and gas.



Low-cost bulk movement of goods by water, always of importance in this country of great inland waterways and long coastlines, will become vastly more important on completion of the St. Lawrence Seaway in 1959. Harbour facilities are being prepared to meet the increase. Tremendous expenditures have been made on maintaining and extending the highway network across the country. It is in this field that perhaps the greatest difficulty has been encountered in keeping up with demand. The traditional use of the highways for local passenger and freight movement has been extended until now the automobile, the bus and the truck have, in the specialized field of unitary transport, taken their places beside the railway as essential mediums of freight and passenger movement. The oil and gas pipeline, a relatively new development in Canada, is being rapidly extended as the most efficient means of transporting these elements to the most profitable market.

## **Railways**

The two great transcontinental railway systems operating in Canada are the Canadian National Railways and the Canadian Pacific Railway. Both companies are at present undergoing extensive programs of modernization and extension, including complete dieselization of motive power, the procuring of thousands of new ultra-modern freight and passenger cars, extension, improvement and modernization of yard facilities and repair and maintenance shops, the building of branch lines to serve mining projects in hitherto isolated areas, and the streamlining and mechanization of office procedure. Indeed it is difficult to conceive of a period in railway history when the railway resources have been more fully employed than in recent years. Through broad-scale research and employee training they have intensified their efforts to make the best use of material and human resources.

The Canadian National Railways, a government-owned system is Canada's largest public utility, operating in addition to its rail network and the multifarious associated facilities, a fleet of coastal vessels and inter-provincial ferries, a nation-wide telegraph service providing efficient communication between all principal points of Canada with connections to all parts of the world, a highway transport service, express facilities in Canada and abroad, a chain of hotels, a scheduled trans-Canada and North American Air Service and a transatlantic air service.

The Canadian Pacific Railway is a joint-stock corporation having, in addition to its far-flung railway operations, a fleet of inland, coastal and ocean-going vessels, a north-south airline system, a transpacific airline service to the Orient and the Antipodes, air service to Mexico and Peru and a polar route from Vancouver to Amsterdam, a chain of year-round and resort hotels, a cross-Canada telegraph network, a world-wide express service and a truck and bus transport service.

A number of other companies operate railways in Canada but the Canadian National and Canadian Pacific railway systems comprise about 90 p.c. of the mileage operated. Of the 44,476 single-track miles operated in 1955, a total of 39,642 miles was operated by the two major railways. Gross operating revenues of the two railway systems in 1955 amounted to \$1,131,687,285, and operating expenses were \$1,040,284,898 compared with \$1,063,279,703 and \$1,022,074,871 in 1954. The 61,399,814,245 ton-miles





Highway transport service is operated in conjunction with rail service by the CPR from Winnipeg west to Vancouver, ensuring rapid year-round delivery in areas where weather conditions often interrupt traffic. The CNR operates a similar door-to-door service from Montreal to Toronto and Windsor in Ontario.

Dry ice being loaded into a refrigerated trailer.



of revenue freight handled by the two companies in 1955 was an increase of 4,849,765,749 ton-miles as compared with 1954. Passengers carried numbered 26,355,123 in 1955 compared with 27,387,505 in 1954.

The Board of Transport Commissioners for Canada controls railway freight and passenger rates and makes rules and regulations relating to construction, operation and safety.

### Urban Transport Services

Most of the passengers carried by urban transport systems—systems operating electric railway, rapid transit or subway, motor bus, motor coach or trolley facilities in urban, suburban or inter-urban service—are now carried by motor or trolley buses. In 1955, urban transit systems carried 1,211,578,000

passengers compared with 1,264,434,000 in 1954. Inter-urban services carried 63,947,539 passengers, 3,495,325 fewer than revised figures of the previous year. There has been a definite downward trend in traffic on transit facilities since 1949. A large proportion of the 2,971,670 private passenger vehicles in use, including automobiles and motorcycles, is competitive with the transit systems. The recent rapid development of suburban areas has had the effect of encouraging the purchase of private cars as well as increasing the operating costs of transit-company service. At the same time, the advance in fares made necessary mainly because of this suburban expansion has discouraged to some extent the previously profitable short-haul city traffic.

## Roads and Highways

Governments at all levels in Canada are concentrating on road building and improvement programs so that an ever-extending network of roads is developing across the country. From a four-lane underwater tunnel being constructed under the south arm of the Fraser River at Vancouver to the linking up of formerly isolated communities on the Island of Newfoundland, highway authorities are attempting to meet their respective requirements. Expansion of population coupled with an even greater rate of increase in the ownership of motor vehicles has put a tremendous strain on road building facilities. At the end of 1954 there were 192,616 miles of surfaced road and 331,439 miles of non-surfaced road. Of the surfaced road, 159,295 miles were gravel, 31,866 miles were bituminous and 1,455 were concrete.

In the years from 1946 to 1954 over \$1,000,000,000 was spent on highway construction, more than was spent in the preceding quarter-century. In the latter year alone, expenditures on new construction and maintenance of roads, bridges, ferries and other works was \$429,472,008, \$355,454,863 of which was supplied by the provincial governments and the remainder by the



Urban and suburban transport systems have been coping with the problems of serving ever-extending areas. Niagara Falls is served by a subsidiary of the Toronto Transit Commission. When one organization is busy in summer, holidays and weekends, the other is slack and interchange of manpower and equipment is beneficial to both.

federal and municipal governments. All roads, except those in the Territories, the National Parks and Indian reserves, which are the responsibility of the Federal Government, are under the jurisdiction of provincial and municipal authorities. It is estimated that the nation's highway-building program under way in 1956 involved an expenditure of \$700,000,000.

The Trans-Canada Highway program, which was started in 1949, has been progressing very slowly. Nine provinces agreed to participate in the program and undertook to construct and maintain that portion of the highway, other than in federal lands, within their borders and the Federal Government agreed to share equally with each province the cost of new construction and the cost of construction of existing highways taken into the system. Quebec, though not co-operating on a financial basis, is still providing a highway linking the two ends of the trans-Canada route in Ontario and New Brunswick. In order to expedite construction where gaps still exist and to extend the time limits of the agreement, an amendment to the Trans-Canada Highway Act was passed in 1956 authorizing a federal contribution of 90 p.c. of the cost of construction for one-tenth of the highway in each province. The total length of the highway, outside of Quebec, is 4,468 miles. By mid-1956, 2,740 miles had been paved but only 1,365 miles paved to Trans-Canada Highway standards.

## **Motor Vehicles**

There were more motor vehicles registered in Canada in 1955 than ever before. Of the 3,948,652 registrations—compared with 3,644,589 in 1954—2,935,417 were for passenger cars and 1,013,235 for commercial vehicles and motorcycles, including 914,795 trucks, 10,694 buses, 36,253 motorcycles and 51,493 other vehicles. Registrations in the different provinces were as follows: Newfoundland, 39,766; Prince Edward Island, 22,145; Nova Scotia, 149,841; New Brunswick, 106,648; Quebec, 743,682; Ontario, 1,617,853; Manitoba, 222,474; Saskatchewan, 274,950; Alberta, 356,839; British Columbia, 409,343; and the Yukon and Northwest Territories, 5,111.

Provincial revenues from motor vehicle registrations and licences reached a high of \$113,519,484 in 1955, and provincial gasoline tax revenues amounted to \$264,407,817. Taxable gasoline sold, most of which was consumed by motor vehicles, amounted to 2,226,980,245 gal.

The apparent supply of new passenger vehicles in 1955 amounted to 397,830 cars, 91,953 more than in 1954. The 1955 figure included 349,306 cars made for sale in Canada plus 48,546 imports, less 22 re-exports of imported cars. In that year, 386,962 passenger cars valued at \$1,023,351,000 were sold, as well as 78,716 trucks and buses valued at \$232,539,000. Nearly 40 p.c. of the number and 30 p.c. of the value of these vehicles were financed by finance companies. The average financed value was \$2,031.

*Motor Carriers.*—The movement of freight and passengers by motor vehicle has assumed a place of great importance in the national transportation picture. Technological improvement of equipment, the extension of hard-surfaced highways and the construction of new high-speed express highways have contributed greatly to increased traffic in recent years.





*Canada has now one vehicle for every four persons and to accommodate its increasing mobility more than \$700,000,000 is being spent annually on roads and highways. The network of rural roads is fairly adequate but within the urban districts there exists a great demand for more and better mileage.*

The present series of motor carrier statistics covers only 'common' carriers and does not include companies operating contract services. The figures do not represent a complete coverage of the industry which is largely made up of small businesses with hundreds of licensees, each operating one or two trucks. Their bookkeeping is often inadequate and, at the same time, amalgamations and retirements are numerous, making a census difficult. However there is a gradual consolidation taking place and a growth in the size of the average firm. In 1954, 2,784 carriers reported an average gross revenue of \$88,972 as compared with an average of \$45,356 for the year 1950. Of the 2,784 firms reporting for 1954, 309 had gross revenues in excess of \$100,000, 663 had revenues of between \$20,000 to \$99,999 and 1,737 were small operators with revenues of less than \$20,000. Seventy-five firms operated urban bus services.

## Shipping

The importance of shipping in the economy of the country may be realized when consideration is given to the fact that Canada is one of the world's major trading nations and that a large portion of the goods coming into and leaving the country does so by way of the sea. Also, Canada possesses large navigable waterways extending inland which not only lead to the seaports but provide, as well, cheap service from one point to another along the way. The inland lakes and rivers are almost innumerable and there are vast outlying areas where water is still the only available means of transportation. Many settlements along both east and west coasts depend entirely upon coastal shipping for the transport of goods and passengers.

There is no record of all the freight carried by water in Canada, but there is a record of the number and tonnage of ships calling at all ports at which there are customs collectors and of cargoes of vessels trading between these ports. All waterways including canals and inland lakes and rivers are open on equal terms, except for the coastal trade, to the shipping of all countries of the world so that the commerce of Canada is not dependent entirely upon Canadian shipping. However, a large part of the inland and coastal traffic is carried in ships of Canadian registry.

During 1955, customs officials reported 120,442 vessel arrivals in foreign and coastal service as compared with 118,969 in 1954 and 123,075 in 1953. The total tonnage of all cargoes loaded and unloaded in foreign trade at all Canadian ports amounted to 75,383,496 tons, of which 25,898,532 tons or 34.2 p.c. was carried by vessels of Canadian registry.

As in former years, the bulk of foreign trade was with the United States, accounting for 45,380,783 tons, or 60.2 p.c. of the total. Canadian vessels carried 55.2 p.c. of this waterborne commerce. In trade with other countries, however, Canadian shipping carried only 836,608 tons of a total of 30,002,713 tons. Most of the cargo was carried by vessels of the United States, the United Kingdom, Norway, Panama, Liberia, Germany, Sweden and Japan.

In 1955, commodities exported by vessel amounted to 39,502,714 tons, 28.5 p.c. above the 1954 total. The greatest increase was recorded at Atlantic and St. Lawrence River ports (Montreal and below), where the total jumped from 16,960,293 tons in 1954 to 24,719,979 tons in 1955, or 45.7 p.c. Most of this increase was accounted for by shipments of iron ore from Seven Islands. The tonnage of waterborne exports from Great Lakes and St. Lawrence River ports above Montreal increased 28.5 p.c. to 6,359,084 tons, a recovery to the 1953 level. The total of 8,423,651 tons at Pacific Coast ports was down slightly from 8,810,720 tons in 1954. Major Canadian exports by ship in 1955 included: iron ore, 13,739,589 tons; wheat, 5,187,847 tons; gypsum, 3,135,052 tons; lumber, 2,441,394 tons; newsprint, 2,160,331 tons; and pulpwood, 1,834,508 tons. Iron ore shipped in 1955 was more than double the 1954 tonnage but other items were relatively unchanged.

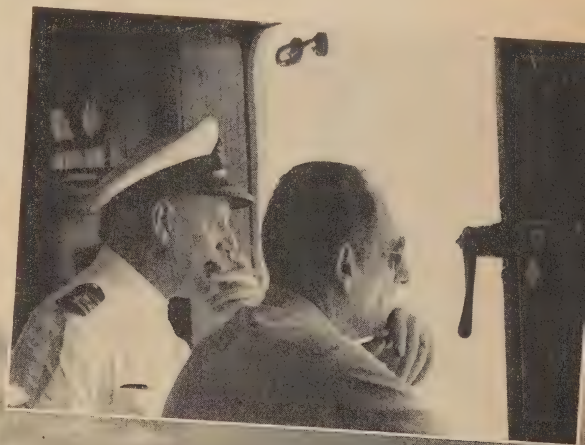
Imports received by ship increased from 32,274,166 tons in 1954 to 35,880,782 tons in 1955, or 11.2 p.c. Shipments of bituminous coal were up from 12,372,250 tons in 1954 to 13,674,184 tons in 1955 and iron ore from 3,147,033 tons to 4,763,016 tons. Increases were also registered for bauxite, limestone, sugar, salt, sulphur, scrap iron, cement, chemicals and petroleum products. Decreases were recorded for corn, flaxseed, anthracite, sand and gravel, fertilizers and crude petroleum.

Lighthouses and other marine danger signals, a pilotage service and radio signal and direction-finding stations, as well as federal legislation and regulations, maintain a high standard of safety for navigation in and around Canada.

## Canals

The St. Lawrence waterway with its ship channel and series of canals is the world's greatest inland navigation system, providing as it does a great navigable artery from the Atlantic Ocean to the western end of Lake Superior, a distance of more than 2,200 miles. It has enabled Canadian grain to be sold at competitive prices in the markets of the world and aided in the expansion of manufacturing and trade in the St. Lawrence lowlands. The development of this waterway as a highway of international trade has throughout the years involved a series of engineering projects in keeping with the increasing demands of traffic and the safety of larger and faster ships. The greatest of these is now under way.

Freighters and luxury liners all depend on the St. Lawrence pilot for safe guidance along the winding waterway between Montreal and Quebec, most of which is dredged channel. The pilot, besides technical training, needs a great storehouse of local knowledge and years of experience with ships. He must start his apprenticeship with the Department of Transport at the age of sixteen.





In the autumn of 1954, following protracted negotiation between Canada and the United States with respect to power development and navigation works in the international rapids section of the St. Lawrence, construction of canals and other navigation works was begun by the St. Lawrence Seaway Authority and the United States counterpart, envisaging adequate navigation for vessels of 25-foot draught from Montreal to the head of the Great Lakes. The construction area for the St. Lawrence Seaway is some 120 miles in length from Montreal Harbour to the eastern reaches of Lake Ontario, and work is also being done at the Welland Ship Canal between Lake Ontario and Lake Erie to provide a depth of 27 feet as elsewhere on the Seaway. On Nov. 17, 1954, the first blast was set off, marking the beginning of work for excavation of some 7,600 feet of the Seaway channel and construction of the protecting dyke on the south shore of the St. Lawrence River near Montreal, on the first contract awarded by the St. Lawrence Seaway Authority. The Seaway will be ready for navigation in the spring of 1959.

In the meantime traffic continues through the old St. Lawrence canals which, with the Welland Ship Canal between Lakes Ontario and Erie and the Sault Ste. Marie Canal between Lakes Huron and Superior, are Canada's main route canals on the St. Lawrence waterway. Subsidiary Canadian canals or branches include the St. Peters Canal between Bras d'Or Lakes and the Atlantic Ocean in Nova Scotia; the St. Ours and Chambly Canals on the Richelieu River, Quebec; the Ste. Anne, Carillon and Grenville Canals on the Ottawa River; the Rideau Canal between the Ottawa River and Lake Ontario; and the Trent and Murray Canals between Lake Ontario and Georgian Bay in Ontario. During 1955, 32,685,154 tons of freight passed through the canals in 28,172 vessels. In addition, thousands of pleasure craft locked through; one point, Sault Ste. Marie, was passed by 178,006 passengers.

## **Harbours**

Overseas exports and imports comprise a large proportion of Canada's international trade and the long routes over which these commodities travel—the overland routes and the sea lanes—are linked together by a number of deepsea harbours. Having in mind the importance of deepsea ports as inherent and vital units in the national system of transportation, and for purposes of ensuring greater efficiency and economy in operation, improvement and strengthening of engineering services as well as uniformity in regulations and tariffs, eight of these harbours have been placed under a permanent central board for administration as national ports in accordance with national policy and with the assistance of national credit. The National Harbours Board is an agency of the Crown, responsible to Parliament through the Minister of Transport. Seven other harbours are administered by commissions that include municipal as well as federal appointees and, in addition, there are about 300 public harbours, all of which come under the supervision of the Department of Transport.

The harbours administered by the National Harbours Board are Halifax and Saint John on the Atlantic seaboard; Chicoutimi on the Saguenay River, and Quebec, Three Rivers and Montreal on the St. Lawrence River in Quebec; Churchill on Hudson Bay; and Vancouver on the Pacific Coast. Six of these

are major ports with facilities including wharves, vessel berths, transit sheds, grain elevators, cold-storage warehouses, terminal railways, shore and floating equipment, workshops, electric-power and water-supply systems and industrial sites. In the years 1956 to 1958 as much money will be spent on improving these harbours as was spent in the twenty years after 1935.

Freight movement through a large port takes a number of forms and that loaded and unloaded from sea-going vessels frequently constitutes a surprisingly small part of the total. Usually the volume coming in and going out by coasting vessels is larger. There is, as well, a transit movement from one point to another within the harbour which may also be large in volume. It is not possible to obtain complete statistics of freight handled, but figures for the ports reporting the highest tonnages in foreign and coastwise trade are as follows.

**Foreign and Coastwise Trade Through Ports Handling over 2,500,000 Tons in 1955**

Port	Foreign		Coastwise		Total Freight Handled
	Loaded	Unloaded	Loaded	Unloaded	
	tons	tons	tons	tons	tons
Montreal, Que.....	4,846,324	4,571,064	3,985,802	5,860,385	19,263,575
Vancouver, B.C.....	4,070,491	1,118,821	3,004,643	2,657,590	10,851,545
Port Arthur, Ont.....	3,154,326	329,533	4,501,321	262,719	8,247,899
Hamilton, Ont.....	33,728	6,077,113	309,230	902,482	7,322,553
Seven Islands, Que.....	6,212,511	32,165	826,019	70,884	7,141,579
Halifax, N.S.....	1,628,697	2,147,271	1,008,866	328,107	5,112,941
Sault Ste. Marie, Ont.....	395,632	3,922,333	106,780	112,253	4,536,998
Toronto, Ont.....	62,593	1,859,370	953,002	1,469,750	4,344,715
Port Alfred, Que.....	437,434	3,344,475	33,983	429,737	4,245,629
Port Colborne, Ont.....	62,770	706,827	1,503,615	1,925,290	4,198,502
Fort William, Ont.....	471,073	847,895	2,111,926	280,229	3,711,123
Quebec, Que.....	768,385	497,605	76,620	2,138,130	3,480,740
Sydney, N.S.....	391,991	153,292	1,905,910	880,465	3,331,658
Three Rivers, Que.....	469,223	190,017	28,562	2,063,813	2,751,615
Saint John, N.B.....	1,491,730	794,421	86,399	340,305	2,712,855
Bell Island, Nfld.....	2,152,356	27	445,424	21,090	2,618,897



***Ships in the Cornwall Canal, bypassing the Long Sault rapids section of the St. Lawrence River. A diversion canal permits the use of the 14 - foot - deep system during Seaway construction. It is being replaced by locks on the United States side of the river.***

Certain of these ports, such as Port Alfred, serve large industrial establishments rather than great aggregations of population and their cargoes are therefore mainly limited to the movement of such heavy bulk raw materials as iron ore, pulpwood or, as for Port Alfred, bauxite.

## **Civil Aviation**

Through the medium of air transportation, Canada has been able to develop more rapidly the rich resources of territory otherwise almost inaccessible. From a modest beginning in 1919 aviation in Canada has progressed steadily, and Canadian airlines now provide not only a continental network of air services, but also an extensive international service to the British Isles, France, Germany, United States, Mexico, the Caribbean, South America, the Orient, and the Antipodes. In 1955 Canadian air carriers flew almost 81,000,000 revenue miles carrying some 2,763,000 passengers, 231,845,000 lb. of goods, and 24,267,000 lb. of mail.

During this period of growth, greatest emphasis has been placed on the extension of the facilities required for aircraft and for the safety of flying, in preference to more convenient terminal facilities. The Federal Department of Transport, which is responsible through its Air Services for the control of civil aviation, operates more than 100 airports and provides traffic control over 20,000 miles of airways. A chain of airports, equipped with modern air navigation facilities, extends from coast to coast, linking at Edmonton with the Yukon and Northwest Territories. The expansion of airports and facilities proceeds as necessity requires in keeping pace with the demands of ever-increasing air traffic and of heavier and faster aircraft, and a program of improving terminal building facilities is well under way.

The Visual Omni Range system of air navigation on the Montreal-Windsor route was commissioned in January 1956, and work is progressing in extending similar coverage across Canada. Another project in hand, designed to improve control of the large volume of air traffic, is the installation of long-range airport surveillance radar units from coast to coast. Fifteen sets have been ordered for delivery in 1957. These installations will ensure much greater safety for aircraft in flight, as it will be possible for air traffic controllers to pinpoint small aircraft within a radius of 100 statute miles from an airport and at an elevation of up to 60,000 feet under all weather, with considerably greater ranges for larger aircraft.

Trans-Canada Air Lines, a publicly owned company, was created by Act of Parliament in 1937 to operate an all-Canadian transcontinental and international air service. From its initial service of 122 miles between Vancouver and Seattle in 1938, Trans-Canada Air Lines was, by the end of 1955, operating on 23,714 miles of air routes in Canada and to the United States, the British Isles, continental Europe, Bermuda and the Caribbean. During 1955 TCA flew 969,392,395 passenger miles, carrying 1,682,195 passengers. Ton miles of air freight totalled 9,951,059, air express 2,167,137, and mail 7,704,144. In April 1955, TCA began operation of Viscount aircraft and was the first airline in North America to place in service turbine-propeller aircraft. At the end of 1955 the TCA fleet consisted of 22 North Stars, 26 Douglas DC-3's, 7 Super Constellations and 14 Viscounts.





Twenty Vickers Vanguard propeller-turbine airliners have been ordered by TCA and four more optioned as part of its modernization program. By mid-1961, TCA's fleet will be completely turbine-powered. The Vanguard has a cruising speed of 420 miles an hour and carries 82 first-class or 102 tourist passengers.

Every flight is carefully planned by the pilots in consultation with flight dispatchers and meteorological experts.

TCA's fleet of Vickers Viscounts is gradually being increased and will number 36 by 1958.





*In September 1957, Canadian Pacific Air Lines will receive the first of ten Bristol Britannia airliners now on order or option. These aircraft will eventually replace the Company's DC-6B's on its international service.*

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In 1942 the many independent operating companies engaged in flying in northern Canada were taken over by the Canadian Pacific Railway and consolidated into one company under the name of Canadian Pacific Air Lines. This Company also operates the following international routes: from Vancouver to the Orient, the Antipodes, and South America; the trans-Arctic route, Vancouver-Amsterdam; and a direct Toronto-Mexico service. The Company's route mileage now totals some 40,000 miles. In 1955 CPA flew a total of 195,730,000 passenger miles carrying 276,201 passengers. Goods and mail carried totalled 23,896,000 lb. and 276,201 lb. respectively. Domestic routes are flown by DC-3, DC-4, Canso, DHC-3, Curtiss C-46 and Convair 240 aircraft. DC-6B's are used on all overseas routes. The Company has on order for 1957 five Bristol Britannia "310" long-range turbo-prop airliners, with options on five more. These will eventually replace the Company's DC-6B aircraft on its international service.

In addition to TCA and CPA, scheduled service is provided in the lower St. Lawrence area by Quebecair; in the Atlantic and Pacific Coast areas by Maritime Central Airways and Pacific Western Airlines, respectively; and from Winnipeg, Man., to Red Lake, Ont., by Trans-Air Limited. In 1956 Maritime Central Airways inaugurated an international charter service from Montreal and Toronto across the North Atlantic, and to the United States and South America.

Canada's non-scheduled requirements are met by 205 charter and non-scheduled operations. Such services act as feeders to the scheduled airlines and provide for the transportation of personnel, equipment and supplies vitally needed in the exploration and development of the remote parts of Canada. They have made many development projects in otherwise inaccessible areas economically sound and physically possible. During the year 1955, non-scheduled operators flew 25,474,268 revenue miles, carrying 398,530 passengers, 114,898,104 lb. of goods and 1,027,636 lb. of mail.

Civil flying other than that conducted by the scheduled airlines and the large non-scheduled air carriers has also shared in the expansion that civil

aviation has experienced since the end of World War II, as indicated by the increasing number of aircraft employed by corporations and private interests. Of the more than 1,500 privately registered aircraft in Canada, approximately 850 are company-owned, including some 200 multi-engined types.

Instructional flying undertaken by approved flying clubs and commercial flying schools has also increased from a yearly average of 68,000 hours for the period 1948-51 to an average of 119,000 hours for the period 1952-55.

The economic regulation of commercial services in Canada is the responsibility of the Air Transport Board, which was established in 1944. The Board also acts in an advisory capacity to the Minister of Transport in matters relating to civil aviation.

**International Agreements.**—Canada's position in the field of aviation as well as its geographical location has necessitated co-operation with other nations engaged in international civil aviation. Canada played a major role in the establishment of the International Civil Aviation Organization, and in recent years has been a signatory to agreements concerning civil aviation with Australia, Belgium, Denmark, France, Ireland, Mexico, the Netherlands, New Zealand, Norway, Peru, Portugal, Sweden, United Kingdom and United States. On the North Atlantic, Canada was given extended rights for traffic from Ireland, Japan and the Azores, and also rights in Belgium and landing rights in France.

On the Caribbean route, rights have been obtained in Florida from the United States and for points of call in British territories. In the Pacific, agreements provide for calls at Honolulu, Fiji and Hong Kong. In the trans-border field, TCA has the right to operate from Montreal to New York, and from Montreal and Toronto to the Bahamas and Jamaica with stops at Tampa or St. Petersburg, Florida. Operating certificates have been issued to fifteen Commonwealth and foreign scheduled services flying into Canada.

## Pipelines

**Oil Pipelines.**—At the end of 1955 Canada's oil pipeline system had 5,079 miles of line, exclusive of looping, compared with 1,423 miles in 1950. In addition to the pipeline network within Canada there were 1,514 miles of

*For fifteen years, Maritime Central Airways has been operating throughout Eastern Canada from Charlottetown, P.E.I., and today ranks as one of Canada's four major air carriers. It has recently inaugurated an international freight service.*





line in the United States used exclusively for the delivery of Canadian crude oil to Ontario and United States refineries. Pipeline construction work in Canada during 1956 raised operational mileage to almost 5,800 miles. Net oil deliveries in 1950 were only 50,654,282 bbl.; in 1955 a total of 224,274,768 bbl. were delivered and 200,642,930 bbl. in the first nine months of 1956. The increase recorded in 1956 illustrates the progress being made in the marketing of Canadian crude oil. All refineries from Vancouver to Sarnia are being supplied through Canada's crude oil pipeline system. Before the end of 1957 the rapidly expanding Toronto area refining industry will be receiving Prairie oil by means of an eastward extension of the Interprovincial pipeline from Sarnia. Canadian pipelines are also transporting increasing volumes of crude oil for export to the United States. Pipeline exports amounted to 16,656,000 bbl. in 1955; in 1956 these shipments were almost three times that amount.

There are two principal components of Canada's oil pipeline system: the Interprovincial pipeline originating in the Edmonton area of Alberta and carrying crude oil to Sarnia, Ontario, via Superior, Wisconsin, over a 1,770-mile route; and the Trans Mountain pipeline traversing the Cordilleran region along a 718-mile route from Edmonton to Vancouver, with a spur line into the State of Washington. A continuous expansion program is under way in both of these systems. At the end of 1956, the Interprovincial pipeline had a daily capacity eastward from Edmonton of 217,000 bbl. En route to Sarnia, deliveries are made both directly and by off-shoot lines to Canadian and American refineries. The system also receives crude oil from Saskatchewan and Manitoba oil fields. The Trans Mountain pipeline, with a capacity of 184,000 bbl. daily at the end of 1956, supplies British Columbia and Washington refineries and also tankers at Vancouver for off-shore shipments to California and Japan. Work carried out in 1957 will make provision ultimately for total withdrawals from Alberta of daily quantities in excess of 500,000 bbl. by these two major trunk lines.

In Eastern Canada petroleum products distribution from Montreal and Sarnia refineries is made through products pipelines. Crude oil for Montreal refineries enters Quebec via pipeline from Portland, Maine, where tankers, principally from Venezuela, make their deliveries for overland transportation.

**Natural Gas Pipelines.**—Natural gas pipeline construction in 1956 was considerably greater than oil pipeline work. At the start of the year there were 4,143 miles of gathering and trunk lines; by the end of the year this total had been increased to approximately 5,500 miles. City and town distribution mileage rose from 5,538 to almost 6,500 miles. The commencement of the Trans Canada pipeline and the Westcoast pipeline, together with the expansion of existing provincial distribution systems in Alberta and Saskatchewan, made 1956 an outstanding year in the history of the natural gas industry. Construction in 1957 is continuing at a rapid pace.

The 649-mile gas pipeline of Westcoast Transmission Company Limited was two-thirds complete at the end of 1956. Before the end of 1957 this line will be drawing natural gas from fields of the Peace River region in north-eastern British Columbia and northwestern Alberta and delivering it to Vancouver and to an export point on the British Columbia-Washington boundary. This will be the first step in a natural-gas marketing project which

will lead to the construction of 875 miles of gas lines to cities and towns throughout the interior of British Columbia.

Trans Canada Pipe Lines Limited commenced construction of its pipeline in July 1956 at a point on the Alberta-Saskatchewan border and by the end of the construction season had over 200 miles of line in the ground. On resumption of construction in May 1957 the line will be carried eastward to Winnipeg before the end of the year via Moose Jaw, Regina, Brandon and Portage la Prairie. When completed to Eastern Canada, the 2,200-mile line will be the longest in North America. It will be supplied from a grid system in Alberta connecting major gas sources and will make gas deliveries to most cities and towns as far east as Montreal.

Other important gas developments in 1956 and 1957 include expansion of existing Alberta utility services and the construction of pipelines to industrial plants. Saskatchewan's gas pipeline distribution system also is rapidly becoming province-wide and construction of distribution systems entered an active period in Vancouver and in Manitoba centres in preparation for 1957 gas deliveries from the two new major trunk line systems.

Gas sales in 1955 totalled 117,800,000,000 cu. feet and during the first six months of 1956 they amounted to 82,500,000,000 cu. feet.

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*Hundreds of millions of dollars have been invested in men and equipment to utilize one of Canada's greatest resources—natural gas—and carry it from the gas fields of the Peace River district of northern British Columbia and Alberta to Vancouver and the United States border and from central Alberta eastward as far as Montreal.*





A trail of steel towers rising at thirty-mile intervals from skyscraper, mountain peak, escarpment and plain will, by 1958, form an invisible link across Canada's vast distances permitting a telephone signal to speed from Halifax to Victoria in  $1\frac{21,000}{1,000,000}$ ths of a second. When the last tower is up and electric impulses start their speed-of-light journeys from amplifier to amplifier, the world's longest single microwave network will be in complete operation. The eastern section of the network, from Quebec City to Toronto and westward to Winnipeg, as well as a Maritime regional link with Halifax, was put into operation in 1956.



# Communications

## Telephones

At the end of 1955 there were 4,151,678 telephones in Canada—27 per 100 population. In this respect Canada ranked third among the major nations of the world, preceded only by the United States and Sweden.

The 2,739 separate telephone systems, large and small, operating in 1955 co-operated in providing service across the country: 2,214 of these were small co-operative systems in rural districts and 373 were shareholder-owned companies. The largest of the latter were The Bell Telephone Company of Canada operating in Ontario and Quebec and serving 61 p.c. of all the telephones in Canada, and the British Columbia Telephone Company serving 9 p.c. of the total. Four private companies serve the Atlantic Provinces and three systems operated by the respective provincial governments serve the Prairie Provinces.

Long-distance services make possible the interconnection of practically any telephone across the country with any other, or with any of the 53,000,000 telephones in the United States. Connections are also available with 126 other countries and territories. Within Canada, long-distance service is provided by the separate systems and, on a nation-wide scale, by the Trans-Canada Telephone System, an organization comprising the seven major telephone organizations and two additional associated companies.

The use of telephone service in Canada runs at a high level. The estimated number of calls on all systems in 1955 was 6,961,476,000 representing an average of 1,677 calls per telephone or 446 calls per person of the population. Of the total, 153,000,000 were long-distance calls mainly within Canada or between Canadian and United States\* points.

Investment in Canadian telephone enterprises continued to rise throughout 1955. By the end of the year total capital invested in telephone systems amounted to \$1,470,679,433. Employees numbered 55,673 and during the year they received \$173,922,973 in salaries and wages.

The tremendous growth of Canadian telephone systems in the past ten years has been matched by their technological development. Automation in the Canadian telephone industry began on a large scale some thirty years ago with the introduction of dial telephones and step-by-step equipment for automatic completion of local calls. About 74 p.c. of all telephones in Canada are now served by this method, and the proportion is increasing steadily. Crossbar, a type of automatic switching equipment more flexible than step-by-step, has now been introduced in several Ontario and Quebec communities with heavy calling volumes. The same basic type of crossbar switching is employed in the regional long-distance centres at Toronto and Montreal. These machines enable operators to dial calls directly to telephones in many distant cities across the continent. Within a few years the extension of this system to most major centres in Canada and the United States, and the addition of automatic call accounting machines, will make it possible for customers themselves to dial long-distance calls.

These developments in the automatic switching of long-distance calls are accompanied by advances in the provision of transmission channels on

a trans-Canada basis. Construction of the first inter-system microwave radio relay chain, between Toronto and Winnipeg, was completed in September 1956 by The Bell Telephone Company of Canada and the Manitoba Telephone System. The westward continuation of the chain will reach Lethbridge late in 1957 and Vancouver by mid-1958. The Maritime Provinces will be joined to the central part of the network towards the end of 1957 when the section between Saint John, N.B. and Quebec City goes into use. The entire transcontinental microwave system will be available for telephone and television purposes when these remaining links are completed.

Canadian manufacturing companies produce the greater part of the telephone equipment and materials used in the country. Dependably high quality is maintained, and desirable uniformity is made possible in operating and maintenance practices across the country.

**Overseas Telecommunication.**—Since 1952 all external telecommunication services—by cable, radiotelegraph and radiotelephone—have been maintained and operated by the Canadian Overseas Telecommunication Corporation, a Crown agency established in 1950. The Corporation immediately entered upon a program of expansion to meet increasing demands for overseas communications from Canada and anticipated requirements for the years ahead. The most important undertaking was Canada's participation in the construction and maintenance of a transatlantic telephone cable, in co-operation with the United Kingdom and the United States. The laying of the first section of the cable started from Clarenville, Nfld., in June 1955 and the system was placed in service on Sept. 25, 1956.

Other developments in overseas communications for Canada include new transpacific radiotelephone and radiotelegraph services to and from Australia and New Zealand, requiring the erection of transmitting and receiving facilities and an administration building on the West Coast. Since Nov. 1, 1956, Canada has had direct voice communications with Australia and New Zealand. Overseas radiotelegraph facilities at Yamachiche and Drummondville, Que., have also been augmented to take care of the expansion of existing services and the introduction of new direct radiotelegraph circuits between Canada and Germany and France. In December 1956 the Corporation brought into service an overseas teleprinter switching system by means of which the user can teletype directly from his own office into that of his correspondent. This service is available across Canada.

## **Radio and Television**

Broadcasting in Canada, as it has developed over a period of more than 35 years, is a combination of public and private enterprise. Under the Canadian Broadcasting Act (R.S.C. 1952) authority for this system is vested in a Board of eleven governors appointed by the Governor in Council and chosen to give representation to the principal geographical divisions of Canada. The Board is directly responsible to Parliament for carrying on a national broadcasting service in Canada, and for the policies of the Canadian Broadcasting Corporation. It also administers and supervises regulations pertaining to broadcasting which are observed by both the CBC and privately owned stations.

Canada participated with the United Kingdom and the United States in the laying of a transatlantic telephone cable which was placed in service in September 1956. Here the cable is being hauled ashore at Clarenville, Nfld.



History was made in Vancouver on Nov. 1, 1956, when the Canadian Overseas Telecommunication Corporation opened the first Canadian radio link with the Antipodes. A radiotelephone voice conference through the new Vancouver station officially linked the United Kingdom with Australia and New Zealand via Canada.

The Chairman of the Board of Governors, appointed for a ten-year term, is required to devote the whole of his time to performance of his duties under the Act. The Board members, who serve for three-year terms, are not paid and must take an oath of office disclaiming any personal interests in broadcasting. The Board reviews broadcasting activities in Canada generally, in the interests of the country as a whole.

While the Board of Governors determines and supervises policy, day-to-day operations and executive direction of the CBC is the responsibility of the General Manager. The CBC is organized in the following divisions: Program, Engineering, Commercial, Treasury, Press and Information, Personnel



and Administration, Station Relations and Broadcast Regulations, Bureau of Audience Research and International Service. These divisions are represented in five regions—Pacific, Prairie, Ontario, Quebec and Maritimes—each under a regional director, with a regional director for Newfoundland.

The CBC is responsible for regulations controlling the establishment of networks and the proportion of time that may be devoted to advertising in broadcast programs. It neither exercises, nor authorizes any private station to exercise on its behalf, censorship of any broadcast program. The responsibility of having the regulations observed rests with individual stations.

The privately owned stations, which are subject to licensing control by the Department of Transport and to CBC regulations authorized by Parliament, serve primarily the locality in which they are situated with the general purpose of providing a community service. Many such stations are located in relatively small urban centers and serve as well the larger population located in the surrounding rural areas. Others serve medium-sized and metropolitan cities together with the audiences located in the surrounding towns and rural areas, providing alternative programs to those of the CBC. In sparsely populated areas where privately owned stations would not be economical, the CBC provides service through 54 unattended, low-power relay transmitters. All but 67 of the 162 privately owned radio stations form an integral part of the national networks as outlets for national service programming.

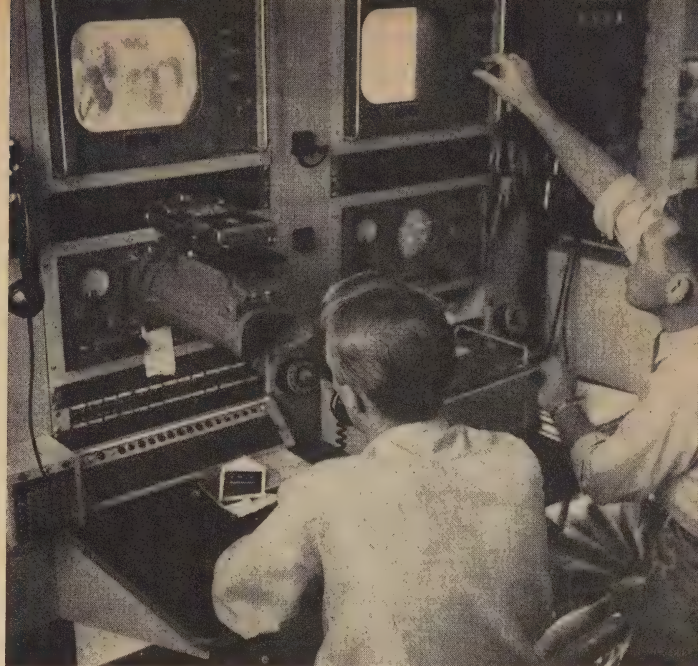
The general principles of this system have been approved by fourteen Parliamentary Committees and two Royal Commissions. A third Royal Commission, headed by Robert M. Fowler, conducted an exhaustive study of the country's broadcasting situation in a series of hearings throughout Canada during 1956. At the year's end this Commission, the first since the advent of television in Canada, was engaged in the preparation of its report.

**Facilities.**—All the privately owned television stations and many of the privately owned radio stations operate in partnership with the CBC in distributing national radio and television services over five networks—in radio, the Trans-Canada, French and Dominion networks, and in television, the English and French networks. The networks are operated by the CBC. Network radio service is available to approximately 95 p.c. of the population, while 80 p.c. is within range of Canada's national television service.

As of Jan. 1, 1957, there were 24 CBC radio stations and eight CBC television stations; 162 privately owned radio stations and 29 privately owned television stations. In addition there were 11 shortwave stations, of which three were CBC and eight privately owned; five CBC and 25 non-CBC frequency-modulation stations, and 54 low-power relay transmitters. Two TV stations, in addition to those mentioned above, are managed by the CBC and use United States facilities, under international agreement, at Goose Bay (Labrador) and Harmon Field, Nfld. These serve United States and Canadian military personnel as well as Canadian civilian population.

The CBC's income, pending possible changes resulting from recommendations of the Fowler Commission, is derived from a 15-p.c. excise tax on radio, television and phonograph sets and tubes, and revenue from commercial programs, with the remainder made up from parliamentary grants. Income of privately owned stations is derived from commercial operations.

*Technicians at Winnipeg line up and test a picture from New York being sent via Toronto over the new microwave system. On the left is a polaroid camera attachment which can photograph and develop a picture from the TV screen in 120 seconds.*



**Radio Program Service.**—Canada's system of broadcasting is designed to overcome the problems posed by great distances, a scattered population, and six of the world's 24 time zones. Programs are planned regionally and nationally on CBC networks, and provide a substantial amount of Canadian production as well as outstanding programs from other countries. They offer a wide range of material including programs of substance and a good measure of straight entertainment.

Through CBC facilities, schools across Canada are provided with at least 30 minutes daily of broadcast programs specifically planned by departments of education to meet classroom requirements. In addition, national school broadcasts, prepared with the advice of the departments of education and teachers and financed by the CBC, are heard on Fridays. More than a million children in 32,500 Canadian classrooms hear these school broadcasts regularly. Canada's agricultural population is served by the most complete service of farm broadcasts in the world, including the weekly National Farm Radio Forum, which has about 8,500 members across Canada. A comparable program, Citizens' Forum, provides a national platform for discussion of topics of current interest. Programs of interest to women are scheduled for afternoon listening; there are special children's programs for out-of-school listening; and time is allotted regularly for religious programs. Free-time political broadcasts arranged with the various parties are heard both nationally and regionally. The special CBC Wednesday Night program offers a full evening of the finest in drama, music, talks, poetry, recitals and performances by such groups as the CBC Symphony and the CBC Opera Company.

**Television.**—Canadian television began in September 1952, when the CBC's first television stations, CBFT and CBLT, were opened at Montreal and Toronto, respectively, programming about three hours each evening.

By January 1953, the program schedule at both centres had grown to 30 hours a week, and live programs from United States networks joined the Canadian schedule when the microwave link between Buffalo and Toronto was completed. As of Jan. 1, 1957, there were 10 CBC stations: at Vancouver (CBUT), Winnipeg (CBWT), Toronto (CBLT), Ottawa (CBOT and French-language CBOFT), Montreal (CBFT and English-language CBMT), Halifax (CBHT), Goose Bay (CFLA-TV) in Labrador and Harmon Field (CFSN-TV) on the Island of Newfoundland.

Privately owned stations were operating from 29 other centres: Victoria, B.C.; Calgary, Edmonton and Lethbridge, Alta.; Regina and Saskatoon, Sask.; Brandon, Man.; Sault Ste. Marie, Port Arthur, Sudbury, Timmins, North Bay, Barrie, Wingham, Windsor, London, Kitchener, Hamilton, Kingston and Peterborough, Ont.; Sherbrooke, Quebec City, Rimouski and Jonquières, Que.; Moncton and Saint John, N.B.; Charlottetown, P.E.I.; Sydney, N.S.; and St. John's, Nfld. Others were planned at Quebec City, Kamloops, B.C., Medicine Hat, Alta., and Rouyn, Que.

This development brought Canadian television within range of 80 p.c. of the population. Actually, more than 60 p.c. of all Canadian homes were equipped with TV and, at the start of 1957, this approached the total of 2,500,000 homes. Of the 39 stations, 19 between Winnipeg and Quebec City are joined by microwave relay while four Maritime stations—Halifax and Sydney, N.S., and Saint John and Moncton N.B.—are linked in a separate Maritime TV network. Plans were completed for joining the Maritime network to the main system and completing extension of microwave relay from coast to coast, possibly some time in 1958.

Today Canada is second in the world in terms of "live" television production and in terms of number of television transmitters in use. CBC television has developed a program schedule covering the wide range of entertainment achieved in its sound broadcasting, and based on the same objectives. On the English network more than 55 p.c. of the schedule is made up of Canadian programming and on the French network more than 80 p.c. is Canadian-produced. These programs have included weekly drama series, leading sports events such as NHL hockey and the Grey Cup football final, children's series, news, variety, discussions, and many other types of programs. The majority of Canadian television productions are "live" from studios at Toronto and Montreal, but regional and national shows are also produced in studios at Vancouver, Winnipeg, Ottawa and Halifax. Some programs shown on the CBC network are fed directly from United States networks via the microwave relay and some film features are







about four years, despite geographical difficulties and the two languages of the country, television service has been brought within reach of 80 p.c. of the population of Canada. CBC audiences enjoy a full range of programs including adult entertainment of every type, children's entertainment and informational programs, news and special events, school broadcasts, farm broadcasts, religious and sports programs.



also offered from other countries. Three separate experiments in television for school children have been undertaken by the CBC School Broadcasts Department in collaboration with the provincial departments of education and results are being studied.

**CBC International Service.**—The International Service is financed wholly by funds voted by Parliament. The main program and production headquarters are in the Radio Canada Building at Montreal and two powerful 50,000-watt transmitters at Sackville, N.B., are linked with the studios at Montreal by a landline 600 miles long. Altogether the shortwave broadcasts of the International Service are listened to in some 30 countries. The programs are broadcast in 16 languages: English, French, German, Dutch, Danish, Swedish, Norwegian, Italian, Spanish, Portuguese, Czech, Slovak, Polish, Russian, Ukrainian and Hungarian. Countries having poor reception for geographical reasons, such as Austria and Greece, receive transcribed programs. The International Service endeavours to give listeners in other lands Canadian views on international affairs and a picture of Canadian life, with special reference to cultural, social and economic development.

### **Postal Service**

Canada's air-mail, railway-mail and land-mail services are among the most extensive in the world and also among the most efficient. To speed the estimated 3,500,000,000 mail items annually passing through the Post Office to their destination requires a tremendous organization using every type of transport from aircraft to dog team and the employment of 21,614 persons.

The principal means of mail transportation is the railway mail service which operates over 40,000 miles of track. Mail clerks sort and exchange the mails in the railway cars and in the steamships serving coastal settlements. All first-class domestic mail up to and including eight ounces is transported by air whenever this expedites delivery. A network of air routes links up every section of Canada and connects with air services to other countries and serves many points in the hinterland lying far beyond the end of steel. The most remote Arctic outposts receive their mail by means of courtesy flights provided by the Royal Canadian Air Force and commercial lines as well as by ship.

Wherever population warrants, post offices are established for the transaction of every kind of postal business. House-to-house delivery is conducted in cities and towns and daily service is given over most rural routes. In suburban areas delivery is often made to group mail boxes where it is picked up by the addressee. A multitude of side-services are in operation, conveying mails to and from sub-post offices, postal stations and railway stations, wharves and airports, collecting from street letter boxes and delivering parcel post. Stage and motor vehicle services supplement rail and other media of transport in outlying districts.

The Post Office Department is continually improving its mail-handling machinery. In the larger offices mail is handled automatically from its arrival to its departure. Belt conveyors carry it from one working division to another. Though facing-up and sorting is still done by hand, mechanical equipment, such as cancelling machines, revolving tables, bundle-tying machines and

spiral chutes speed up this work. The Post Office Laboratory is working on the development of the first simplified prototype of an electric sorting system for medium-size offices and an automatic facing-up machine. The first sorting and despatching machine to be installed in North America is in operation at the new Peterborough Post Office—five operators sort letter mail into 300 separate receptacles at a speed of 3,000 letters per man hour.

On Mar. 31, 1956, there were 11,996 post offices and 11,099 money order offices in operation. For the year ended on that date, postage paid by means of postage stamps totalled \$75,559,106 and the gross postal revenue was \$158,568,356, the highest ever recorded. Combined deposits of \$36,164,460 were reported in the Post Office Savings Banks which are located throughout Canada.

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*Speed and efficiency are Post Office bywords and equipment is constantly being improved to keep up with the ever-increasing volume of mail. Electronic sorters handle 3,000 letters per man hour. Below is a view of the new \$13,000,000 Post Office at Vancouver which is equipped for rooftop helicopter landings.*





# THE BANK OF NOVA SCOTIA



*The whole approach of Canadian banks to the general public has undergone a great change. In the 1930's, the bank's main task was to conserve resources but since 1940 lending has become dynamic. Today the commercial bank is a competitive business depending for its success on the goodwill of the customer, adapting itself easily to changing conditions and sharing in the growth and needs of the community and the country.*

# Banking and Insurance

## Banking

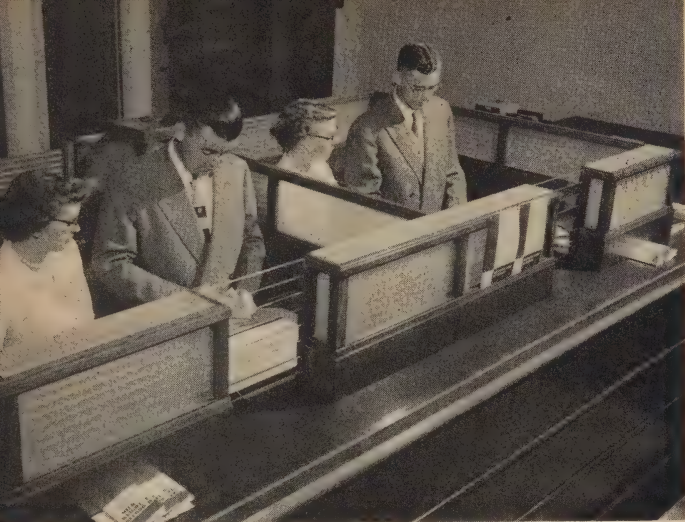
**T**HE role of Canadian banks in financing and facilitating Canadian business becomes more evident each year. Canada is an under-capitalized country and the banks fill an indispensable role in mobilizing the savings and working funds of the nation and putting them to use in financing current business.

**The Banking System.**—The Canadian banking system is a strong and stable structure with many outstanding features that have grown up since its foundations were laid more than a century ago. It consists of the Bank of Canada, which is a government-owned bank, and nine privately owned commercial banks competing among themselves for the domestic and foreign banking business of the Canadian people.

The Bank of Canada is the keystone of the structure. Its chief function is to regulate the total volume of money and credit through changes in the cash reserves of the chartered banks. An increase in cash reserves above the required minimum of between 8 and 12 p.c. encourages banks to expand their assets (mainly by purchasing securities and making loans) with a resultant similar increase in their deposit liabilities; a decrease in cash reserves tends to discourage expansion and may result in some contraction. Therefore, by taking steps to alter the volume of cash reserves available to the chartered banks, chiefly through open market purchases and sales of Government of Canada securities, the Bank of Canada is able to influence the total of chartered bank assets and the total of their Canadian dollar deposit liabilities. The deposit liabilities of the banks, except for those payable to the Government, are of course assets of the general public and together with currency comprise its most liquid assets.

*The production and distribution of Canada's currency is a very large - scale operation handled entirely by the Bank of Canada. Each year about 150,000,000 new bank notes with a face value of more than \$170,000,000 are placed in circulation.*





*An efficient system of audit and inspection is an essential part of a branch banking organization. It is a standing rule that members of the staff concerned should witness counting operations during an inspection.*

The Bank acts as the fiscal agent of the Government of Canada, manages the public debt and has the sole right to issue notes for circulation in Canada. It is empowered to buy and sell securities on the open market, to fix minimum rates at which it will make advances and to buy and sell bullion and foreign exchange. The Bank is managed by a Board of Directors appointed by the Government.

The Industrial Development Bank, established in 1944, is a subsidiary of the Bank of Canada but operates as a separate entity. Its function is to supplement the activities of the chartered banks and other lending agencies by supplying the medium- and long-term capital needs of small enterprises; the bank does not engage in the business of deposit banking.

The nine chartered banks of Canada are commercial and savings banks combined. While they supply a complete range of banking services, their principal function is to provide a safe repository for savings and to act as the principal source in Canada of short-term credit. The banks are privately owned, latest figures showing 77,153 shareholders, of whom 74.4 p.c. are Canadian, owning 73.7 p.c. of the shares. The fact that 90 p.c. of the shareholders have 500 shares or fewer shows the wide diffusion in bank ownership.

The commercial banks are referred to as "chartered" banks because they do business under a charter or licence granted by the Parliament of Canada. They receive this charter through the Bank Act, federal legislation which prescribes what the banks can and cannot do and provides a uniform banking law for all Canada. Every ten years the bank charters are renewed and the Bank Act is reviewed by Parliament and revised to keep it in tune with banking needs, a practice unique to Canada.

From the earliest days of banking in Canada, the branch bank system has been followed, and has been developed to a much greater extent than in any other nation. At the end of September 1956, there were 4,373 bank branches throughout Canada, or a branch for every 3,667 Canadians—an availability of banking service not exceeded in any other country. It is a reflection of the highly competitive nature of Canadian banking that in the past ten years more than 1,100 branches have been opened in expanding



established areas as well as in new and often remote developments. The chartered banks also have 132 branches or offices outside of Canada, mostly in the United States, Great Britain, the West Indies and South America. In addition, the banks have agents or correspondents throughout the world, an important aid to Canada's world-wide trade.

Although operating under the general supervision of a head office, a branch bank, whether in big city or rural hamlet, is a self-contained banking unit, providing a full range of bank service. Under the branch bank system there need be no lack of credit in a community through lack of local funds. Branches whose deposits exceed local loan potential, credit the excess funds to head office which, in turn, makes them available to branches where lending funds are needed. The branch manager has wide autonomy and behind him stand the resources, strength and experience of the institution of which his branch is a part.

The chartered banks are subject to close regulation by federal authorities, although uncontrolled in their day-to-day affairs. They are under the authority of the Minister of Finance whose link with them is as an official of his Department, the Inspector General of Banks, to whom the banks make regular reports on many phases of their operations. He is required to inspect the books of each bank at least once a year and may do so more often. This inspection is in addition to that carried out by auditors appointed by the shareholders of each bank, and to whom the auditors report. In addition, a continuous audit of the operations of each bank and its branches is carried out by the bank's own inspection staff.

The lending field occupied by the chartered banks is essentially short-term. Banks extend credit to producers, industry, institutions, municipalities, corporations, governments and to tens of thousands of individuals for a multitude of purposes. The banks provide the working capital rather than fixed capital—the money to meet payrolls, to buy raw materials, process them and market them, rather than the money to build a factory. Bank

*A bank manager and a grain elevator official discuss problems peculiar to the business of shipping and storing wheat. The local banker is in every sense a citizen of his community and takes his full share of community responsibilities.*



loans are seldom over a year in length. The latest analysis of bank loans on Sept. 30, 1956 shows total loans in Canada (excluding residential mortgage loans under the National Housing Act) of \$5,395,000,000 and of these, \$3,772,000,000 were for agricultural, industrial and commercial purposes. Loans to individuals totalled \$858,000,000.

*Statistics of the Chartered Banks of Canada, Aug. 31, 1956*

Bank	Branches in Canada and Abroad <sup>1</sup>	Total Assets	Personal Savings Deposits	Total Deposit Liabilities	Loans and Discounts <sup>2</sup>	Liabilities to Share- holders
	No.	\$'000	\$'000	\$'000	\$'000	\$'000
Bank of Montreal.....	692	2,752,493	1,328,961	2,573,539	1,325,616	139,134
Bank of Nova Scotia..	518	1,257,016	573,063	1,171,242	753,482	65,024
Toronto-Dominion Bank.....	461	1,295,198	684,748	1,215,561	715,692	63,950
Provincial Bank of Canada.....	350	272,628	159,874	255,569	124,306	9,090
Canadian Bank of Commerce.....	746	2,392,723	1,091,150	2,244,595	1,311,776	104,899
Royal Bank of Canada.	865	3,431,501	1,310,154	3,146,088	1,517,264	181,588
Banque Canadienne Nationale.....	583	635,567	396,989	612,221	324,921	21,877
Imperial Bank of Canada.....	277	834,398	394,710	779,517	490,461	40,152
Mercantile Bank of Canada.....	3	17,961	882	14,113	9,006	1,901
<b>Totals.....</b>	<b>4,495</b>	<b>12,889,485</b>	<b>5,940,531</b>	<b>12,012,445</b>	<b>6,572,524</b>	<b>627,615</b>

<sup>1</sup> Includes sub-branches and sub-agencies.  
insured under the National Housing Act, 1954.

<sup>2</sup> Includes mortgages and hypothecs

**Monetary Policy in 1955-56.**—Business operations during 1955 and 1956 were extremely active in every field, continuing the dynamic growth that has generally characterized the Canadian scene during the past decade. There was full utilization of facilities and labour, and strong and favourable economic forces were at work throughout the country. But, as often happens in a rapidly advancing economy, an imbalance began to appear in the second half of 1955 between expenditure and the country's physical capacity to produce. In other words, the nation's output of goods and services, high though it was, was not keeping pace with consumption and investment expenditure, causing great pressure on the price level and a rising inflationary trend. It became evident that some monetary restraint was necessary to maintain a measure of stability and the Bank of Canada, in accordance with its statutory responsibility to "regulate credit and currency in the best interests of the economic life of the nation" began, late in 1955, to tighten up on credit expansion by restricting the money supply, thereby allowing market rates of interest to rise with the increased demand for funds. The chartered banks were requested to suspend purchase of corporate securities and to discontinue the granting of long-term loans and were also required to maintain second-line reserves of treasury bills and day-to-day loans sufficient, with existing statutory cash reserves of 8 p.c., to establish a liquid-a set ratio of 15 p.c. of deposit liabilities.

The policy of credit restraint gradually took effect. The monthly rate of increase in general Canadian loans of the chartered banks which had risen from \$65,000,000 to over \$100,000,000 between the third and final quarters of 1955, fell back to \$75,000,000 in the first quarter of 1956 and still further in the second quarter, remaining relatively stable throughout the remainder of the year. However, despite the curb on total credit, the chartered banks were able to serve a reasonable proportion of the increased credit needs of the country: at the end of October 1956 current and call loans were reported at \$5,450,000,000 an increase of \$775,000,000 over the same date of 1955, increases being registered in almost every category of commercial and personal loans. In line with the curbing of credit expansion and the general increase in interest rates, the banks during 1956 made upward adjustments in interest rates on bank loans and in the rates paid on savings deposits.

An important change in central banking technique was introduced on Nov. 1, 1956 from which date the bank's loan discount rate will be set automatically each week at one-quarter of one per cent above the yield rate on 91-day treasury bills, thus making the rate more responsive to conditions in the short-term money market.

*In an area midway between Sudbury and Sault Ste. Marie in northern Ontario, which just over two years ago was wilderness inaccessible except by air, there are now ten uranium mines in operation or under development and 6,000 people live in modern homes, bunkhouses or trailers. Three branch banks serve the area and are fully equipped, as are all branch banks, to render every type of banking business.*



*The Royal Bank branch at Quirk Lake serves 1,500 workers employed by various construction companies in the area. Cash for bank requirements is transported by car and jeep twice a month from Blind River.*





## Insurance

Life insurance has become the most widely practised form of thrift in Canada today, accounting for more than one-quarter of personal savings of all kinds. The ratio of life insurance owned to national income is higher than in any other country of the world; on the average, just over fifteen months of current personal income is protected by life insurance. The number of Canadian policyholders at the end of 1955 was 6,500,000. During that year, new insurance written, including industrial, group and fraternal insurance, amounted to \$3,565,000,000, bringing the total life insurance in force in Canada at the end of 1955 to \$27,315,000,000. This represents an average of \$4,200 per policyholder. The amount of premiums paid to carry this insurance was \$556,000,000. Estimates indicate a further gain of \$3,000,000,000 in insurance in force by the end of 1956.

Although life insurance is bought for various reasons, its primary purpose is protection for widows and children and for old age. Total benefits paid during the year 1955 to policyholders, including death claims, matured endowments, disability claims, dividends, surrender values and annuity payments were \$344,000,000. Of this amount, death benefits amounted to nearly \$124,000,000, which means that close to \$220,000,000 was returned in benefits to living policyholders. There has been a continued and growing interest on the part of Canadians in pension planning and personal retirement programs. Annuity contracts, for example, numbered about 426,000 in 1955 (including group certificates) and represent a present and future income to Canadians of more than \$382,000,000 a year. The important factor in this rapid growth is the increasing interest in group annuities among employers and their employees, which have increased more than 700 p.c. since 1945 and now account for five-sixths of the total annuities in force.

Life insurance in Canada is actively transacted by 69 companies and 40 societies registered by the Federal Government, of which 31 companies and 25 societies are foreign. There are also 14 companies and about 45 societies operating under provincial licence only.

Net premiums written for automobile insurance increased rapidly after the War to the point where they overtook fire insurance premiums in 1953. They now constitute the largest volume of any class of casualty insurance premiums. In 1955, the volume of automobile premiums written amounted to \$179,000,000 an increase of 7 p.c. over 1954 which was largely attributable to rate reductions. The loss ratio based on premiums earned was 57 p.c.

Fire insurance coverage has naturally increased with continued economic expansion but, because of substantial reductions in premium rates, the annual volume of net premiums written has remained almost static since 1953. Fire insurance premiums written in 1955 amounted to \$168,000,000 and claims paid to \$95,000,000. The ratio of claims incurred to premiums written was 56 p.c.

The popularity of personal accident and sickness insurance manifests itself in the steady increase in premiums written for these classes. The volume in 1955 was \$114,000,000, ranking third to automobile and fire insurance and representing an increase of 12 p.c. over 1954. Through life and casualty insurance companies and agencies such as the Blue Cross and medical care plans sponsored by the medical profession, hospital expense

insurance is now provided for about 6,500,000 Canadians, surgical expenses for about 5,500,000 and medical expenses other than surgery for nearly 4,300,000.

Operations in other casualty lines have not been spectacular except for the continued expansion of personal property insurance for which premiums written in 1955 amounted to \$25,000,000. Public liability insurance was next in order of premium volume, which amounted to \$16,000,000.

Insurance is a mutual undertaking for spreading risks so that losses which would be serious or catastrophic to a few persons are shared by many. Insurance today covers almost the entire range of public and private investment, from protection of life and earning power to the sale of life and health policies. It also represents investment in housing, municipal utilities, proper business organization and holdings in stocks and bonds by the insurance companies themselves. The growth each year in the amount of insurance written represents an expanding need for security ranging all the way from dealing with problems of greater complexity in personal financing to providing increased educational funds for children.

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*Insurance forms a large part of the savings of the young family today—protecting the earning power of the head of the household and safeguarding his future and that of his dependants, financing his home and providing for the education of his children.*





Sunday afternoon with the Toronto Symphony  
Warner Photographic Limited

*Music, like science, knows no nationality. Its language is the language of humanity and its works the expression of the times. It knows no barriers of age, colour or creed but lays bare its treasures to be accepted by each of us in his own measure.*



## SOCIAL DEVELOPMENT



**T**HE many and varied aspects of Canada's current social and cultural development and the recently launched enlightened programs toward further advances in the cultural totality of Canadian society—in the Canadian way of life—find a firm base in the tremendous postwar expansion of the national economy and the present high level of prosperity of the Canadian people.

• With increased productive capacity and scientific endeavour have come higher wages, improved working conditions, better housing, marked advances in health—a sustained high birth rate, a steadily declining death rate and a comprehensive program of assistance designed to dispel many of the hazards to health and income security—all contributing to a standard of living hardly surpassed elsewhere in the world.

Stimulated by the emergence of Canada as an industrial and international power and by the enhanced economic well-being of its people, a maturing national self-consciousness is currently finding expression in a justifiable pride in Canadian achievement and potentialities, in a realization of the richness of its bi-cultural traditions—indeed, of the cultural mosaic of many immigrant peoples building a new life in this Northland of opportunity, and in the endeavours of the federal and provincial governments, corporations, cultural bodies and individuals in all branches of literary and artistic expression to foster Canadian cultural activities through such instrumentalities as the theatre, the ballet, the art gallery, radio and television, the film, the press, the university, and the Canada Council for the promotion of the arts, humanities and social sciences.



Youth holds the key to the future. Canada is acutely conscious that education must keep pace with the increasing technological demands of modern society, that every sphere of activity must now be supervised by experts trained at university level, that in gaining material advantages it becomes more and more necessary to develop cultural education to give life its full meaning.

Building upon fine educational traditions, the Federal Government in 1956 joined forces with the provinces and industry in providing financial assistance for the extension of university facilities so that Canada's young people may be trained for the very highest standard of achievement.

# Education

TWO-THIRDS of all Canadian children aged five to nineteen are enrolled in Canadian schools for at least some time during the school year. The proportion increases from 65 p.c. at ages five to nine, to 93 p.c. for ages ten to fourteen and drops to 40 p.c. for ages fifteen to nineteen. About 5 p.c. of those aged twenty to twenty-four are still in school. Altogether, in the academic year 1953-54 about 3,400,000 pupils were receiving formal instruction in public and private schools from kindergarten to university or in vocational or professional training schools.

It is more appropriate to speak of Canada's *systems* of education than of the Canadian *system* of education because each of the ten provinces is responsible for its own schools and each has developed a system to meet its particular needs. Perhaps the greatest distinction is between the French tradition found in the Roman Catholic schools of Quebec and the English tradition found in the Protestant schools of Quebec and in the schools of the other provinces. The basis of the latter which is most prevalent across the country is an eight year elementary school which the child enters at age six, a four or five year high school and a three or four year course at college or university leading to a degree in arts or science. Beyond this basic grouping, there are many variations in detail.

Though school law is provincial law, the operation of the elementary and secondary public schools is a local responsibility. Boards of school trustees, of which there are more than 20,000 across Canada—most of them elected—manage the schools for the ratepayers. Property taxes yield the greater part of the income of the public elementary and secondary schools and provincial grants are the other important source of revenue. Through these grants an attempt is made to equalize educational opportunity in all areas, urban and rural, and also to give assistance for such special purposes as transportation, equipment, building costs and classes in arts and crafts. Provincial grants are, in turn, supplemented by grants from the Federal Government for the support of vocational training. Private schools at the elementary and secondary level are financed largely from fees and gifts or are supported by religious organizations.

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Grant Hall Tower, Queen's University,  
Kingston, Ont.





University income is derived mainly from student fees, government grants, gifts and bequests, and endowment income. Each of the provinces has at least one provincially controlled university or college, or a provincially controlled professional school attached to a private university. Other universities and colleges are privately controlled. Federal grants have enhanced university income since 1951 and late in 1956 the Federal Government announced its intention of increasing those grants from \$8,000,000 a year to \$16,000,000 and of allocating half of the \$100,000,000 grant for the creation of a Canada Council for the Arts, Humanities and Social Sciences to university building projects to be spread over a ten-year period.

A description of Canada's institutions of education and training would include reference to nursery schools, kindergartens, elementary schools, high schools, Indian schools, trade schools, apprenticeship training, technical institutes, business colleges, agricultural schools, teachers' colleges, hospital training schools, colleges, universities, and a variety of agencies of adult education. As one way of introducing these institutions and of indicating their characteristics and roles, there follow sketches of the school careers of nine imaginary Canadians: engineer, teacher, doctor, homemaker, stenographer, Indian farmer, nurse, office clerk, and automobile mechanic.

## Engineer

Engineers are in great demand in Canada these days. Stanley Porteous is one of them—working for a large industrial firm.

Stanley lived in an Ontario city where school facilities were highly developed. At the age of three he began a two-year time of happy play and social development in a private nursery school, attending in the mornings only. From there he went to kindergarten, still for half days, in a nearby public elementary school, continuing in an atmosphere of play, but with the addition of exercises in anticipation of the learning of reading and arithmetic.

When he was six, Stanley went on into grade 1, and the study of language and numbers began in earnest. Eight years he spent in the elementary school, and then entered a collegiate institute, comprising grades 9 to 13. There he followed the general course, with studies in English, history, geography, French, science and mathematics. At the end of grade 12 he qualified for his secondary school graduation diploma and at the end of grade 13 for the "honour" graduation diploma.

He had excelled in mathematics and science and wished to pursue these studies. Should he go to university or to a technical institute? The decision was easy when he learned that he had won a university scholarship, and he embarked on a four-year course in engineering. During the first two years he studied mathematics, physics, chemistry, mechanics, drafting and related subjects, and in the next two he specialized in mechanical engineering. Each of his three summer vacation periods was spent in engineering work—one of the requirements of the training program. His degree was bachelor of applied science (B.A.Sc.).

Membership in the provincial association of professional engineers and in the Engineering Institute of Canada keeps Mr. Porteous up-to-date in his field. He finds time, too, to hear the luncheon speakers brought before its membership by the Canadian Club.



*Every Canadian child must enter elementary school at the age of six or seven—a school usually within walking distance of home if he lives in a city or town, or to which he will be brought by bus if he lives in the country. Here begins the training that will, according to the child's abilities and interest, determine his future place in society.*





*The pupil progresses from elementary to secondary school in his seventh, eighth or ninth school year. Most students go on to this stage and receive at least part of the secondary school training.*

### Teacher

Lois Robertson, born on a prairie farm and now teaching in a prairie high school where her own background and training is having an immeasurable influence on the many young people who look to her for instruction.

Lois received her elementary and secondary schooling in a centralized school to which she and her fellow pupils were taken each day by a school bus, replaced during the winter season by a bombardier or snowmobile. In the process she passed through three stages: (1) elementary school, grades 1 to 6, in which concentration was on the basic school subjects, with the addition of social studies, science, art, music and health; (2) junior high school, grades 7 to 9, allowing for exploratory studies in some vocational subjects as well as continuation of work in language, mathematics, science and social studies; and (3) senior high school, grades 10 to 12, in which she followed a college-preparatory program.

Having decided to be a teacher, Lois had to choose between entering directly a teacher-training course or taking a university degree first. She chose the latter, and enrolled at university in the faculty of arts. Her





subjects included selections from the humanities, the social sciences and the natural sciences. During the two final years of the three-year course she placed major emphasis on the study of psychology and sociology. At the age of twenty-two she was graduated with a bachelor of arts (B.A.) degree.

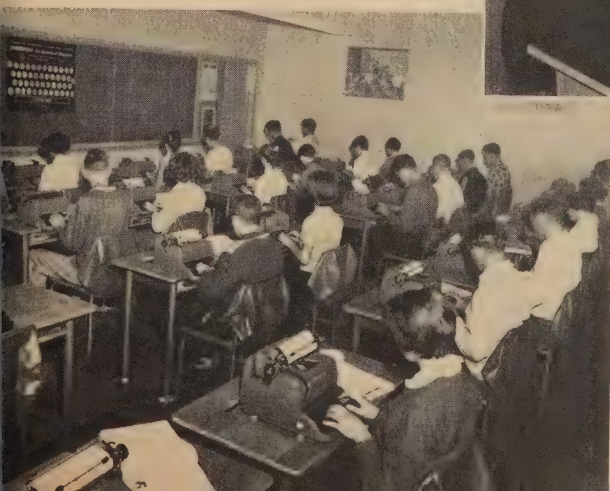
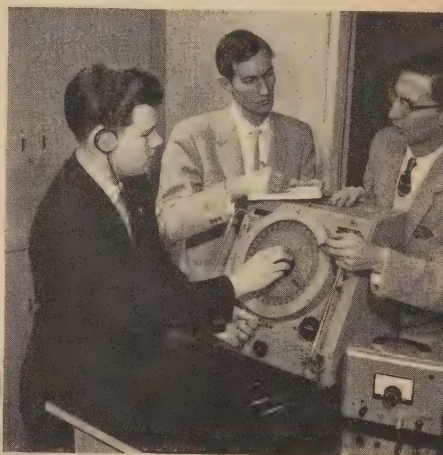
Then followed a one-year course in the university's faculty of education, in which she was introduced to the philosophy and history of education, to educational psychology and to principles of school administration, and was instructed in teaching methods. A significant part of the time was spent in practice teaching in both city and rural schools. For several summers after she began to teach, Miss Robertson spent six weeks in a teachers' summer school, taking further training in the field of education.

## Doctor

Jean-Paul Lefebvre, M.D., physician in his native city of Quebec.

At the age of five, Jean-Paul Lefebvre started his scholastic training in a neighbourhood French Catholic elementary school for boys and was enrolled in the *classe maternelle* (nursery class or kindergarten). After a year of pre-school orientation, he entered the seven-year elementary course in the same school. There he was taught to read and to write his own language—French—and English too beginning in the sixth year. He studied arithmetic, Canadian history, geography and, above all, religion. His teachers were nuns.

Because Jean-Paul showed considerable ability his parents decided then that he should be prepared for a professional career, so his next move was to a *collège classique*. Taught by priests, he followed there an eight-year program of humane studies—Latin, Greek, French, English, history, philosophy, mathematics, science and, of course, religion. He wrote the



At the secondary level, both institutions and curricula are much more greatly diversified so that each pupil may follow the course to which he is inclined.



Elementary school teachers in training at the New Toronto Teacher's College. A new specially designed and equipped building accommodating a thousand students serves to emphasize the importance of the teacher in starting Canada's young people on the right road to personal success and national service.

examinations set by the university to which his college was affiliated and received the degree, *baccalauréat ès arts* (B.A.). This qualified him to enter university, which he did at the age of twenty-one.

During his first two years in the faculty of medicine he studied anatomy, physiology, histology, chemistry and bacteriology. For another two years he studied pathology and attended clinics in the university hospital, and in his fifth year he was a junior intern in the hospital, getting practical experience under the guidance of older doctors. At this point he passed the university's examinations for the degree *docteur en médecine* (M.D.) and also the examinations set by the Medical Council of Canada whose certificate entitled him to practice anywhere in Canada. After one more year in hospital as a senior intern, Dr. Lefebvre began his work as a general practitioner at the age of twenty-seven.

### Homemaker

Madame Denyse Lefebvre is the wife of the  
Dr. Jean-Paul Lefebvre.

Like her husband she spent eight years in an elementary school—one year in the *classe maternelle* and seven more to complete the seventh year of the elementary course. Her teachers, like his, were nuns, but she attended a girls' school. She continued to the secondary school but after completing the ninth year she transferred to a residential *institut familial* (institute of family and feminine education), administered by a religious order but under the direction of the provincial department of education. There she followed a four-year course designed to prepare young women for homemaking and motherhood. The curriculum included training in cooking, home management, handicrafts, millinery, dress-making, baby and child care, and also cultural development through the study of religion, history, language, science, art and ballet. Much emphasis was placed on the development of social

grace and the whole program emphasized the essential femininity of the young women who followed it.

Madame Lefebvre continues her lively interest in the arts by painting two evenings a week in an *école des beaux arts*. She is an ardent supporter of the local art gallery.

### Stenographer

When the manager of a western meat packing firm says, "Please take a letter", it is Helen Sullivan who responds.

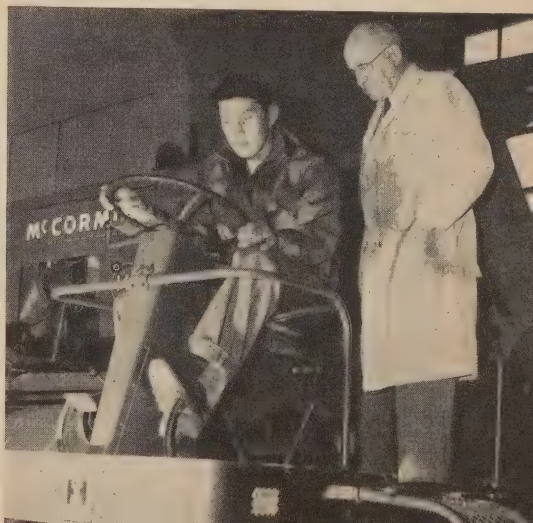
Her first school year in her home city on the prairies was in a private kindergarten. There she expressed herself in music and art, learned to distinguish and name colours, listened to stories, developed a feeling for spatial relationships, had her first experience in getting along with a large group of children, and was oriented to reading and number-work. There followed eight years in a "separate" (Roman Catholic) elementary school—financed, like the public school, by public funds. The curriculum was the same as that of the public school except that there was more emphasis on the teaching of religion. High school came next, but when Helen had completed grade ten she decided to be a stenographer and spent the next year in a private business college. Her studies included shorthand, typewriting, business English, business arithmetic, office practice and office machines. When she received her diploma she was able to take dictation at a speed of 120 words a minute, to type at 60, and to turn out finished letters, invoices and other business forms in an acceptable manner.

Fond of reading, Miss Sullivan plans her own further education and makes much use of the local public library.

### Indian Farmer

Joe Mountain is an Indian and, like many Indians, he is a farmer.

He did not start to school when he was six because he belonged to an isolated band, and it was not until he was eight that arrangements were made by the Indian Affairs Branch of the Federal Department of Citizenship and Immigration to send him to an Indian residential school. There he lived



Young Indian men and women from Alberta reserves are given special instruction in farming and home-making at Olds School of Agriculture and Home Economics.



and studied with 180 other Indian children in a school which was church-controlled but financed by the Federal Government. The curriculum was that of the provincial department of education, with some adaptation to take into account the special problems of Indian children: some could not speak English when they arrived; most were likely to spend their lives on the reserve.

Joe was quiet, like his fellows, but he learned. Not many Indians continue beyond elementary school and when Joe finished the sixth grade he went home to work on the family farm which would one day be his. His schooling was not over, though, for he was chosen several years later to attend the provincial agricultural school (at Federal Government expense) for a two-year course in practical farming—six months each winter. And he continues to make use of the advice made available to him by the extension service of the provincial department of agriculture.

### **Nurse**

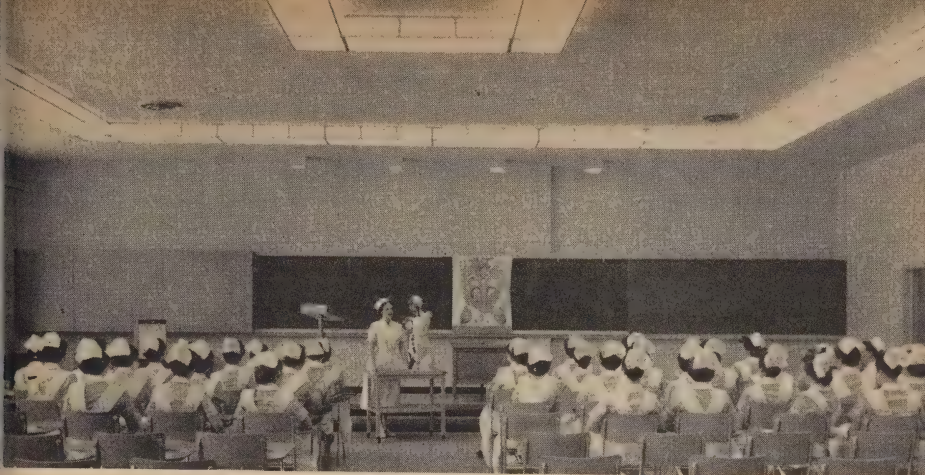
Mary MacLeod, R.N., is a Maritimer and proud of it. She is on the staff of a city hospital.

There was but one room in the village elementary school to which Mary went as a child, and in it she progressed from the primary grade through grades 1 to 6. The teacher had to divide her time among the children in those seven grades, so there was a good deal of "seat work" done by all of them. When she was in the lower grades, Mary often listened to the lessons being given to the older children, and when she became one of the older children she sometimes helped the younger ones. For grades 7 to 11, Mary attended a regional high school. It was some miles from her home, but the school bus stopped at her door each morning, took her to school for the day and dropped her off at home again in the late afternoon. Mary had always wanted to be a nurse so chose her high school subjects with this in mind, being careful to include chemistry, physics and mathematics. At the age of 17 she graduated from high school and because she could not enter the hospital school of nursing until she was 18 she spent a year at home helping her mother. Off she went, then, to the hospital for a three-year course. The curriculum included anatomy and physiology, microbiology, pharmacology and therapeutics, psychology and sociology. In addition she learned many things such as making hospital beds and serving meals to patients, and received a variety of experience on different types of wards—surgical, obstetrical, children's and the rest. Now, as a Registered Nurse, she is engaged in the occupation of her childhood dreams.

### **Office Clerk**

Frank Bell is a clerk in a chemical firm.

After six years in elementary school he entered the junior high school. There, in addition to further study of English, history, general mathematics and science, he was given an opportunity to explore a number of vocational subjects and to take advantage of the school's guidance service. He took courses in typewriting, woodworking and metalworking. Typewriting appealed to him, so when he had completed the three-year program of the junior high school and was ready to enter senior high school (grades 10 to 12) he decided to take the commercial course, one of the several parallel courses



*The training period for a Registered Nurse is three-years. At the Ottawa Civic Hospital, under a new system to be inaugurated in 1957, a student nurse will pay a nominal fee for the first two years as in any other institution of higher learning, and in the third year of advanced practical training in the wards will receive a monthly allowance and live out of residence if she wishes.*

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available in the composite school he attended. In addition to typewriting, which had first caught his interest, his studies included shorthand, book-keeping, secretarial practice, business arithmetic, English, social studies, and health and personal development. At the end of the course he qualified for a high school graduation diploma.

The firm for which Mr. Bell works encourages its employees to continue to learn and has paid half the tuition cost for his attendance at two courses in office management given by the extension department of the provincial university.

### **Automobile Mechanic**

If you were to leave your car at a downtown garage in a Quebec city it might be taken care of by Pierre Trudeau.

Pierre is one of a farm family of eight. His elementary schooling of seven years was obtained in a French Catholic *école de rang*, or rural school. He continued for one year in a secondary school but it was evident by then that he was more suited to work with his hands than to book learning and Pierre went to the city to learn a trade.

The Quebec Department of Social Welfare and Youth operates a network of vocational schools and institutes and Pierre enrolled for a one-year course in an *école de l'automobile*. There he learned the functions of the parts of an automobile and how to repair and correct mechanical defects. He was given instruction on the motor, the transmission and the electrical and lubrication systems, following which he was put on general repair work and given practical experience. Pierre then became an apprentice in a large garage. If he had not gone to the school he would have had to serve a three-year apprenticeship, but completion of the course reduced the required time to one year. When he had served his apprenticeship he passed a practical and

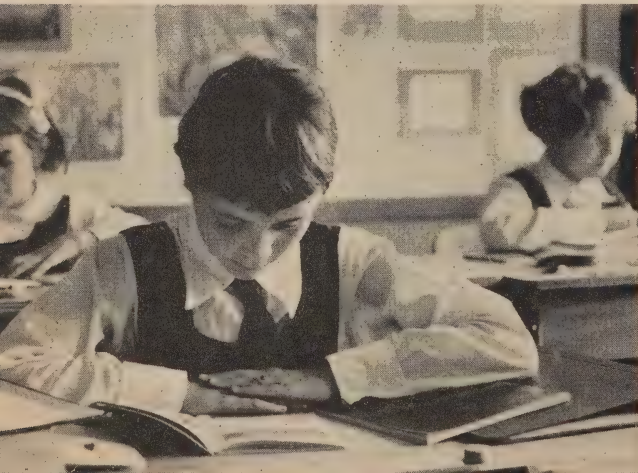
oral examination and was given a certificate of competency as a journeyman automobile mechanic—Class “C”. As he gained experience he prepared for and passed another examination for a Class “B” certificate, and eventually a third for the coveted Class “A” certificate—the mark of the skilled tradesman.

Not all types of schools are represented in these outlines, for the variety of educational facilities in Canada is without end. No mention has been made, for example, of the many kinds of schools and classes for the education of exceptional children, nor of correspondence courses, military colleges and the education of Eskimos. Nor have many of the provincial variations in the organization of elementary and secondary schooling been brought out. What has been recorded, however, is representative of the educational scene.

*Statistics of Canadian Education, Academic Year 1953-54*

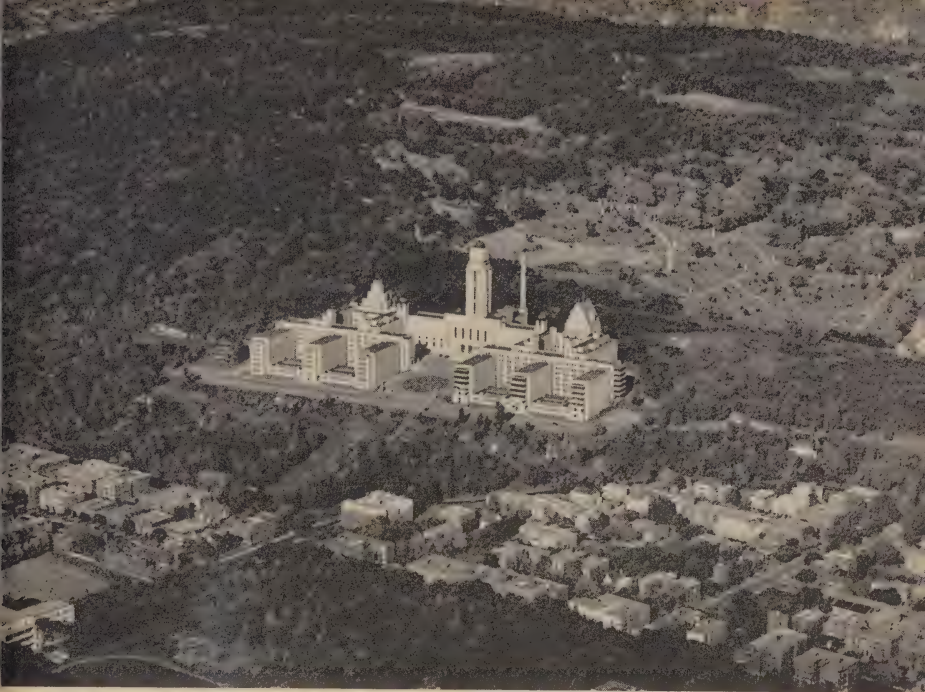
Type of School	Schools	Teachers	Pupils
	No.	No.	No.
<b>Elementary and Secondary Schools</b> (including some vocational training).....	<b>31,882</b>	<b>112,068</b>	<b>3,234,529</b>
Regular public.....	30,149	102,563	2,822,810
Regular private.....	1,259	8,584	160,003
Schools for the blind and deaf.....	13	315	2,096
Indian schools.....	461	606	28,174
Evening classes (public and private).....	—	—	221,446
<b>Universities and Colleges</b> (excluding pre-matriculation courses).....	<b>270</b>	<b>11,789</b>	<b>138,526</b>
Full-time university grade.....	270	6,503	64,121
Evening courses.....	—	5,286	27,977
Other (extension, part-time, etc.).....	—		46,428
<b>Teacher Training Institutions</b> .....	<b>142</b>	<b>1,470</b>	<b>14,337</b>
Normal schools and teachers' colleges (chiefly for elementary school teachers).....	118	1,246	12,072
University faculties of education (chiefly for secondary school teachers).....	24	224	2,265
<b>Totals<sup>1</sup></b> .....	<b>32,270</b>	<b>125,103</b>	<b>3,385,127</b>

<sup>1</sup> Less duplication—figures for university faculties of education also included in those for full-time university grade.



*The gifted child requires as much special attention as the retarded child. Many work classes at the elementary and junior high levels give the fast learner regular school work enriched by additional instruction in languages, literature, science and music.*





*The University of Montreal stands in a remarkable setting near the summit of Mount Royal. It was founded in 1876 and has become an educational landmark in French-speaking Canada. Affiliated with it are thirty colleges with an enrolment of more than 10,000 students.*

*Students at the University of British Columbia are surrounded with magnificence—the creation of nature and of man. The thousand-acre campus, situated on the outskirts of Vancouver contains almost 200 buildings and a \$10,000,000 construction program is at present under way. The University has ten faculties, 765 staff members and 7,500 students.*



# Scientific Research

IN Canada as in any country competing in the industrial world, scientific research has become a most important element in the economic picture. Industry advances on the findings of the research laboratory and it is evident that an increasing proportion of the expenditures of the larger industrial establishments is being allotted to research-development programs.

Investment in scientific research and development by Canadian industries during 1956 is estimated at \$80,000,000, an increase of 20 p.c. over the \$66,000,000 reported for 1955. These figures are based on information supplied by 2,500 leading Canadian companies who co-operated in a survey conducted jointly by the Dominion Bureau of Statistics and the National Research Council. Of these companies, 318 are conducting their own research-development programs, 235 others have research information provided to them without cost—about 50 p.c. of them from parent companies outside Canada—and the remaining companies had no particular research information sources. The expenditure of \$80,000,000 represents an outlay of about \$5 per capita or 0.3 p.c. of the estimated gross national product for 1956. The proportion in the United Kingdom and the United States is two to four times higher but the Canadian increase in recent years reflects a trend towards greater self-sufficiency in research. Canada's relative growth in industrial research-development expenditures since 1946 has been about three-fold, roughly paralleling that of the United States.

## Research-Development Expenditures by Industry, 1955 and 1956

Industry	1955	1956 Estimate	Industry	1955	1956 Estimate
	\$'000	\$'000		\$'000	\$'000
Mining, quarrying and oil wells.....	3,046	3,619	Non-metallic mineral products.....	1,101	1,074
Manufacturing—			Products of petroleum and coal.....	4,704	5,654
Foods and beverages....	1,707	1,779	Chemical products.....	7,845	10,136
Rubber products.....	2,720	2,997	Tobacco and tobacco products and miscellaneous manufacturing.....	297	518
Leather products.....	157	170	Transportation, storage, communications and public utility operations..	3,351	3,372
Textile products.....	1,161	1,295	Construction, health services, engineering and scientific services and trade associations.....	702	934
Wood products.....	95	88			
Paper products.....	4,049	4,595			
Iron and steel products..	3,088	3,297			
Transportation equipment.....	16,553	22,772			
Non-ferrous metal products.....	4,530	5,109			
Electrical apparatus and supplies.....	10,780	11,896			
			<b>Totals.....</b>	<b>65,886</b>	<b>79,305</b>

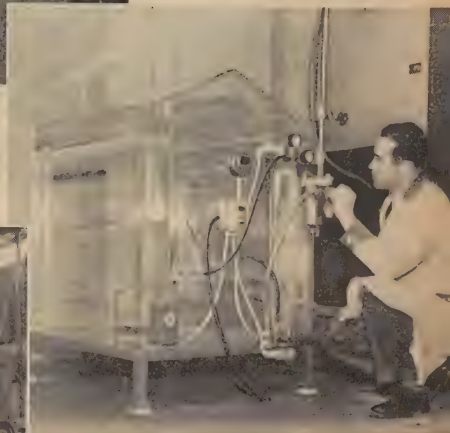
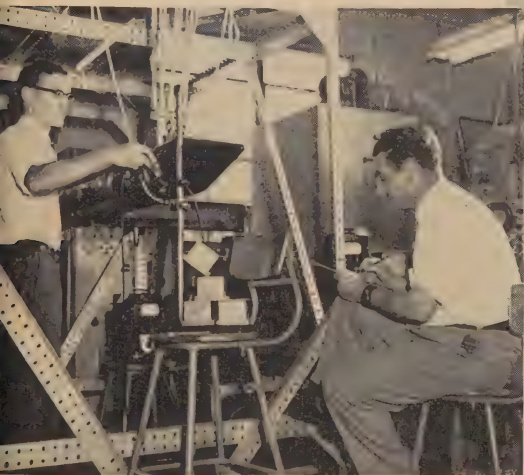
Comparison of Canadian industrial research with British or American must take into account two factors affecting Canada. One is the continuing reliance on facilities of parent companies outside of Canada; out of the \$66,000,000 spent in 1955, \$12,000,000 or 18 p.c. was performed outside of Canada, this in addition to the research information provided free of charge to branch plants in Canada. The other is the greater relative participation





Large food preparations industries carry on continual testing and research to improve their products.

Industrial engineers use development missile as test-bed for torsional studies simulating actual flight conditions.

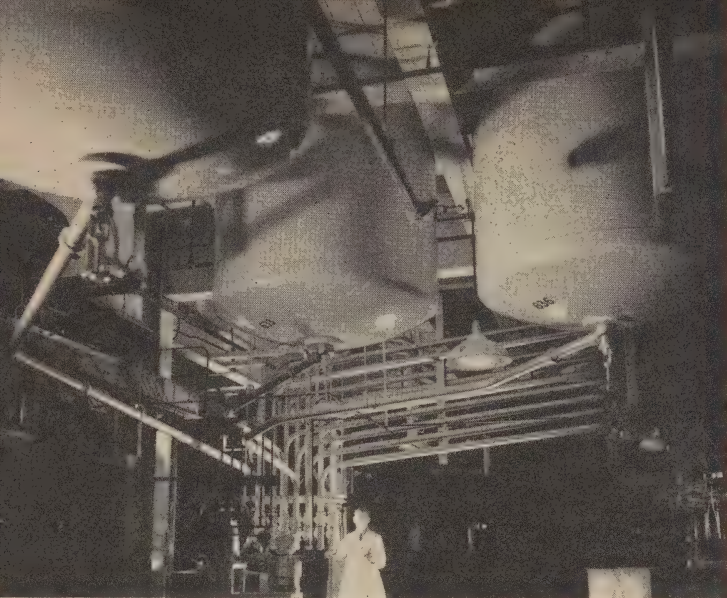


Electronic oil conservation equipment receives known data on an oilfield and prepares information regarding its future behaviour.

Testing explosives to ensure peak performance for a particular job.







*The paint industry is actively engaged in extensive research and has recently developed many new special purpose finishes. New paints, easy to apply and more durable, are available in a wide range of shades.*

of the Federal Government in the nation's total volume of non-military research. In 1956-57 the Canadian Government will spend about \$5.40 per capita on civil research as compared with \$4.40 per capita by the United States Government and a somewhat lower amount by the United Kingdom. Total federal expenditures on research, including defence research, is about 2.5 p.c. of the national budget. In 1955, expenditures in the mechanical, chemical and electrical engineering fields together with chemistry and metallurgy accounted for 86 p.c. of the total.

In most industries the larger companies—those with sales volume in excess of \$50,000,000 a year—are responsible for about 65 p.c. of research expenditures. Exceptions are the chemical products and the iron and steel industries where research costs are shared more evenly by medium and lower annual sales groups.

While industry has in recent years been making an increasing contribution to scientific study, much of the industrial research in Canada has long been carried on by government. The National Research Council plays the leading role in scientific and engineering fields at the national level, while several provincial research councils stimulate and support research designed to assist primary and secondary industries in developing the natural resources of the provinces. A number of federal departments of government—notably Agriculture, Fisheries, Mines and Technical Surveys, National Defence, National Health and Welfare, Northern Affairs and National Resources, and Trade and Commerce—have permanent branches that carry on research in the national interest in such practical fields as soils and crops; processing and marketing of fish; silviculture and forest products; geodetic, topographical, hydrographic and geological surveys and metallurgy; military problems; food and drugs, nutrition and medical care; and the mastery of the Arctic environment. The Dominion Observatory at Ottawa and the Dominion Astrophysical Observatory at Victoria, B.C., specialize in solar physics, geophysics and astrophysics, while Atomic Energy of Canada Limited is engaged in a broad

research and development program in the field of nuclear fission. The work of the National Research Council, the Defence Research Board and Atomic Energy of Canada Limited is covered briefly on pp. 256-261.

A significant role is played by Canada's universities in both fundamental and practical research. A wide variety of studies are at present being carried out in such diverse fields of pure research as mathematics, nuclear physics, electrical communication, isotopes and therapy units. Practical research in the universities, influenced largely by industrial and social life in the communities around them, embrace such fields as primary agriculture, industry, minerals, lands and forests, fisheries, atomic energy, health and town planning. Most of the research in the universities is financed by grants-in-aid, scholarships and fellowships from the federal and provincial governments, from foundations, industrial corporations and individual donors.

For many years in Canada, medical research has been making notable contributions to the health of the nation and to medical knowledge generally through support provided by the federal and provincial governments, by private foundations or corporations, and by universities or hospitals in the form of research fellowships for training and capital and salary expenses to permit investigations in specialized fields. Most of the fundamental medical studies are carried on in medical schools.

Realization of the fact that the gap between research ideas and marketable inventions is narrowing prompted the creation recently of a Crown company—*Canadian Patents and Development Limited*—whose principal purpose it is to make licensing arrangements with industry for patents issued on work of government or university laboratories.

Of particular current interest in the scientific field in Canada is its part in the world-wide program of studies known as the International Geophysical Year (IGY). This is a vast 18-month project being undertaken by more than fifty nations and upwards of 5,000 scientists to obtain simultaneous

Rockets loaded with scientific equipment are fired from this launching tower near Churchill, Man. Travelling up to 165 miles into the stratosphere, the rockets gather information on natural phenomena, which will be part of Canada's contribution to the world-wide program of studies known as the International Geophysical Year.



measurements all over the world of natural phenomena which affect climate, weather, communications, navigation, commerce and many other aspects of daily life. During the IGY—July 1957 to January 1959—about ninety stations in Canada, ranging in importance from the Dominion Observatory to remote outposts, will collect daily information on ocean levels, glacial changes, earth tremors, gravity, magnetism, the Northern Lights, disturbances of the upper atmosphere and solar flares. Most of these stations are already well established and adequate to meet all IGY demands. In other fields expansion has taken place to fit them into the world scheme.

**National Research Council.**—In its forty years of existence, NRC has had a profound effect upon Canadian research. Its first function was to establish a system of grants and scholarships to stimulate research in universities and to assist students in financing post-graduate training. Later the "Associate Committee" mechanism was set up which has, throughout the years, coordinated all research of a national character. NRC began its own laboratory work at Ottawa in 1925 and today operates five laboratory Divisions in the sciences, three engineering Divisions, regional laboratories at Halifax and at Saskatoon, and also operates a Division of Medical Research to award grants and fellowships in support of research in that field. In 1954-56 the Council provided \$2,600,000 to support pure research in the universities. In addition, it sponsors many Associate Committees operating in such diverse fields as aquatic biology, corrosion research, plant breeding, radio science and soil and snow mechanics.

Its service to industry has three objectives: to encourage industrial establishments to use the Council's laboratories just as the units of a large company use their own laboratories as sources of scientific information and assistance; to undertake, under contract, research work for any firm which has a problem that cannot be solved by private consulting and testing laboratories; and, through its Technical Information Service, to help small industries with no scientific staff who often do not realize that their problems are capable of solution and to provide them with information on the latest technical and scientific developments.

NRC staff numbers 2,400, of whom about 600 are scientists whose average age is only thirty-five years. About half of these scientists hold degrees at the doctorate level and the other half degrees at the master or bachelor level, and about 150 of them are also engineers. In addition, there are about 100 post-doctorate Fellows working at NRC, selected by worldwide competition. This scheme has been so successful that it has been extended, under NRC auspices, to universities and some government laboratories. The Council operates on an annual budget of about \$20,000,000 of which about 5 p.c. comes from royalties and fees received for special research for industry. An Advisory Council, responsible to a committee of seven Cabinet Ministers formulates the broad policy that governs the operation of the laboratories. Most of the Council's 21 members are drawn from the senior scientific staffs of universities; others represent labour and industry.

The NRC's laboratories are organized in nine divisions. The current activities of the *Division of Applied Biology* range from applied studies on food storage and transportation to fundamental work on the metabolism and chemical composition of living organisms. The *Division of Pure Chemistry*,



Industrial or closed circuit TV is lending an eye in places where it is difficult or dangerous for men to go. NRC scientists observe in safety the performance of jet engines under conditions in which there is risk of explosion. The camera is mounted in the test cell and separated from the control panel by a thick steel wall.



concerned with investigations in the organic, inorganic, physical and colloid fields of chemistry, is endeavouring to discover the reasons for certain reactions and to determine the ultimate spatial structure of unknown compounds. A major function of the *Division of Applied Chemistry* is the development of chemical processes that will utilize Canada's natural resources. At present petroleum products are receiving special attention, as well as textiles and rubber. The *Division of Pure Physics* is concerned with various fundamental problems including X-ray diffraction, cosmic rays, spectroscopy, solid state physics and theoretical physics. Preparation for the International Geophysical Year, 1957-58, has stimulated much of this research. Of special interest in 1956 was the International Conference on Electron Transport in Metals and Solids, organized by this Division in co-operation with UNESCO and the International Union of Pure and Applied Physics.

Helicopter de-icing is studied by NRC. The huge spray rig provides an icing cloud in which a Royal Canadian Navy helicopter hovers.



The *Division of Applied Physics* serves Canada with its significant contributions to Canadian mapping methods, its provision of a common dosage standard for X-radiation at cancer clinics, and its co-operative program with the Canadian Pulp and Paper Association on noise abatement in the paper industry. Studies in the standards field have led to a highly precise temperature scale through most of the international range, and the reproduction of the standard of brightness through the brightness of melting platinum.

The *Building Research Division*, in co-operation with the construction industry and Central Mortgage and Housing Corporation, is conducting, in a cross-country chain of research stations, an extensive program of studies in building materials, house heating, insulation, fire research, building physics, design characteristics and soil mechanics. A pocket-book edition of the National Building Code has been published for use by smaller municipalities.

The *Mechanical Engineering Division* embraces many branches of aeronautical research, together with certain phases of hydraulic and mechanical engineering and naval architecture. The Division includes units for work on aerodynamics, engines, fuels, lubricants, structures and instruments; operates a flight research station where equipment produced in the laboratories can be tested in actual flight; functions as a research organization for the Armed Services; and provides Canada's aviation industry with research, development and testing facilities.

The *Radio and Electrical Engineering Division* is working on several military projects in co-operation with the Defence Research Board. Considerable basic research is also being carried on in radio-physics and in radio and electrical engineering. Subjects of civil rather than military interest include testing and development work for electrical manufacturers; electronic work associated with a program of electromedical research in progress at the University of Toronto; civil radar techniques, especially in their application to air and sea navigation and aerial survey problems; and solar noise observations, radio-frequency mass spectrometers, antenna design, electronic detection of flaws in paper, electronic music, and the explosion hazards of static electricity generated by grain handling. This Division, too, is playing an important role in the International Geophysical Year.

The *Medical Research Division* promotes medical research through fellowships and grants-in-aid to workers in Canadian medical schools. Many different fields of medical research are being supported, including studies relating to the central nervous system, endocrinology, properties of the blood, metabolism, and shock.

**The Defence Research Board.**—The formulation of broad general policies for defence research and development in Canada, together with the co-ordination of the defence research program in the universities and with industry and government agencies, is the responsibility of the Defence Research Board. The Board has been functioning since 1947 under the National Defence Act and is made up of a chairman, a vice-chairman, five ex-officio members and a number of appointed members.

The Board operates ten laboratories across Canada, as well as liaison offices in London and Washington in addition to its Ottawa headquarters. The research and development program includes in part the following fields:



naval, weapons, the defensive aspects of atomic, biological and chemical warfare, humans in unusual environments, telecommunications, electronics, northern problems and a host of related research projects. All operations are carefully co-ordinated with defence research and development in the United Kingdom and the United States, in order to eliminate any duplication of effort.

**Atomic Energy of Canada Limited.**—This Crown company is entrusted with research and development to enable Canadian industry, agriculture and medicine to take full advantage of the many new opportunities that have arisen from the discovery of nuclear fission. Its main laboratories and plant are situated at Chalk River, Ont., about 130 miles northwest of Ottawa. Since the end of the War its work has been directed towards peaceful applications of atomic energy in science and industry and particularly towards the large-scale generation of electricity. At the same time, fundamental research on the structure of the atomic nucleus has prospered and laboratories have been equipped for studying the basic chemistry of the radioactive substances which characterize atomic energy work and for research into the effects of atomic radiations on living organisms. From the start of the project to March 1957, the Government of Canada has voted approximately \$192,000,000

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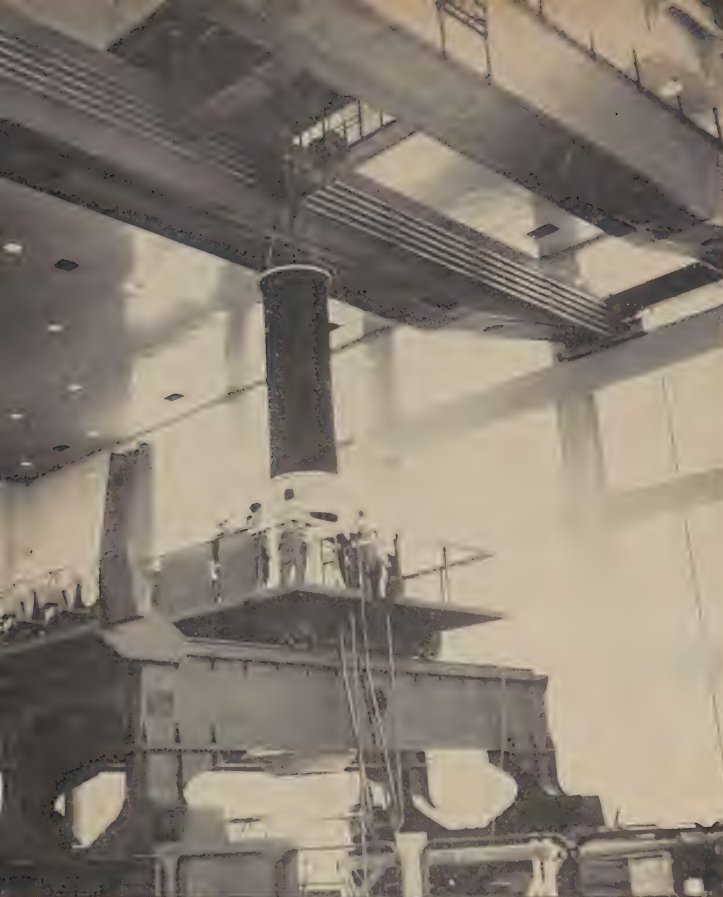
*gunner undergoing a skin temperature test at the Defence Research Northern Laboratory, Churchill, Man., to determine how quickly he may become acclimatized to the cold.*



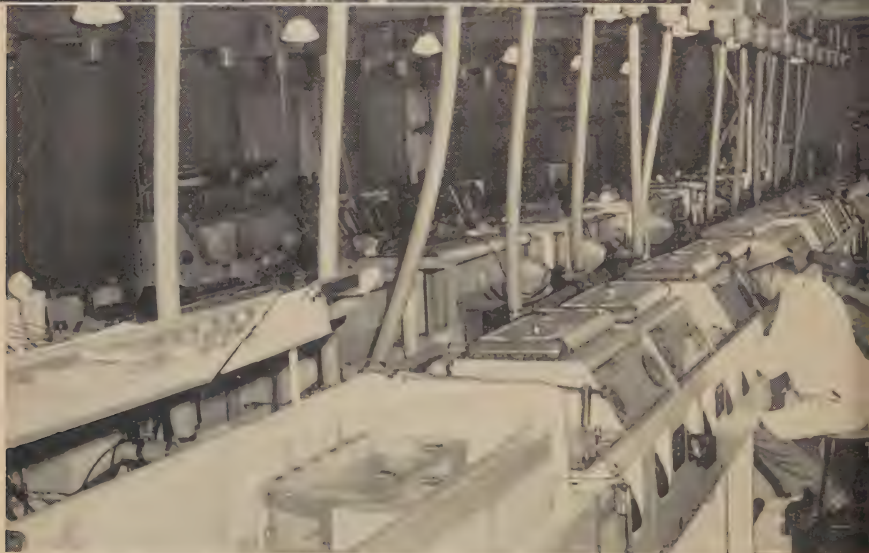
*scientists at DRB's Naval Research Establishment at Dartmouth, N.S., are studying the possibilities of hydrofoil craft in high-speed rescue operations.*







Erecting the  
rod removal flange  
on top of Canada's new NRX  
reactor which will be  
five times as powerful as  
the NRX reactor now  
in operation.



Radioactive sources for medical and industrial applications are handled in ventilated and shielded boxes in the Gamma Laboratory of the Commercial Products Division of Atomic Energy of Canada Limited.

for the development of atomic energy, and about 2,400 persons are now employed by the Crown company.

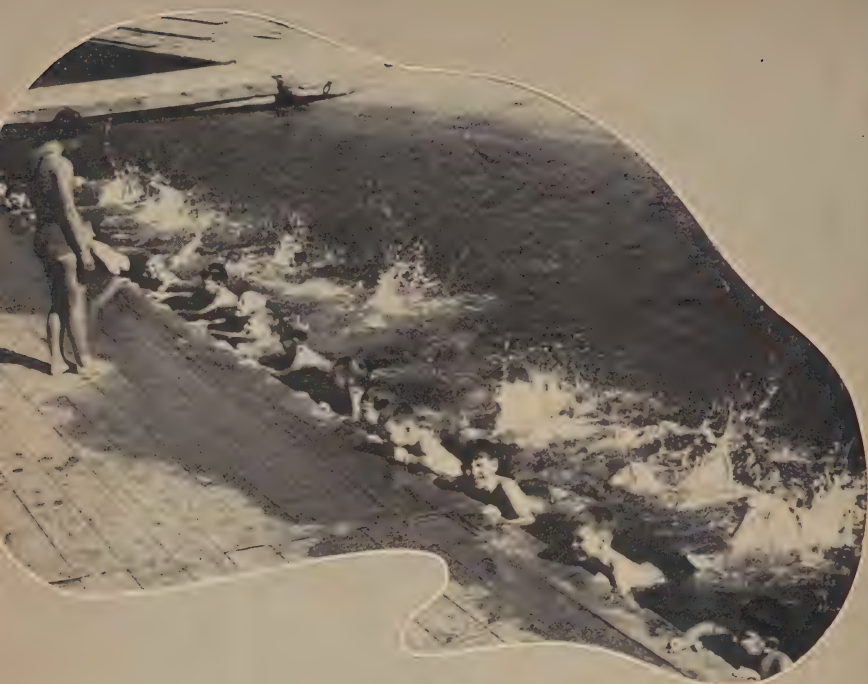
A significant event in Canada's atomic energy program in 1956 was the beginning of the construction of the country's first atomic power station. This Nuclear Power Demonstration (NPD) plant is a joint undertaking by Atomic Energy of Canada Limited, Canadian General Electric Co. Ltd., and The Hydro-Electric Power Commission of Ontario. It is being built about 20 miles from the Chalk River establishment, and will send 20,000 kw. of electricity into Ontario Hydro distribution lines when it goes into operation in 1959. The NPD station will provide valuable technical data and information on the economics of this type of plant which is needed for the design of larger atomic power plants and for estimating their costs. A preliminary design and feasibility study for a power reactor in the range of 100,000 to 200,000 kw. is now being carried out at Chalk River. Power-producing organizations in various parts of Canada are being kept informed on atomic power through the Advisory Committee on Atomic Power Development, a committee consisting of senior executives of the utilities.

Private industry is participating in the Canadian atomic program on an increasing scale. Canadian General Electric Co. Ltd. is designing the reactor for the NPD station; Canadair Limited is designing and building a low-power reactor known as PTR (Pool Test Reactor) for testing reactor fuels at Chalk River; Canadian Westinghouse is producing engineering test apparatus to be installed in the NRU reactor; and Shawinigan Engineering Co. Ltd., is doing the modifications of the NRX reactor design for CIR (Canada-India Reactor). Many other companies are manufacturing equipment of special design for reactors and associated plants. A private firm is building a fuel rod manufacturing plant in Port Hope, Ont., and will design and build the first privately owned reactor in Canada at McMaster University which will be used for research activities and to train scientists and engineers.

Work is progressing rapidly on the Canada-India Reactor being built near Bombay. This is a joint enterprise in which the costs and responsibilities are being shared by the two countries. It is the first major atomic project in the field of international assistance to be undertaken by any of the countries most advanced in the development of atomic energy. The reactor portion of the plant, which will provide experimental facilities similar to those of the NRX reactor on which its design is based, is being provided by Canada under the Colombo Plan.

While primary emphasis is placed on the production of electricity, other beneficial applications of atomic energy are by no means neglected. Cancer therapy units manufactured in Canada have been supplied to hospitals in the United States, the United Kingdom, France, Australia, Puerto Rico, Italy, Brazil, Switzerland and New Zealand as well as in Canada. Others are going to Lebanon and India, and one has been given to Burma under the Colombo Plan.

Radioactive isotopes are bringing improvements in many industrial operations and, in addition, it is becoming abundantly clear that all the biological sciences from forestry to medicine are making a step forward by the use of isotopes in research. The power to control may be expected to follow the understanding so gained.



*The maintenance of a high standard of health and well-being for a community or a nation begins with the individual—first for himself and his family and then for those about him who need assistance. The thoughtful selfless effort of public-spirited citizens is an immeasurable addition to organized professional service.*





# Health and Welfare

THE progressive development of health and welfare services which has taken place in Canada during the postwar years had by 1956 provided a reasonably comprehensive network of assistance against most of the economic and health hazards of today. Health and rehabilitation services were being expanded and integrated to support the work of the hospitals and medical practitioners, though a good deal remained to be accomplished before adequate facilities were available to deal with the problems of mental illness and the chronic degenerative diseases and there continued to be variation between provinces in the type of services provided and in their availability to different groups of the population. Active consideration was being given in all provinces to the federal proposal to assist provincial programs for hospital care and radiological and diagnostic services. In some provinces prepaid public hospital care was available to a majority of persons; in the remainder a substantial proportion of the population was covered under voluntary plans.

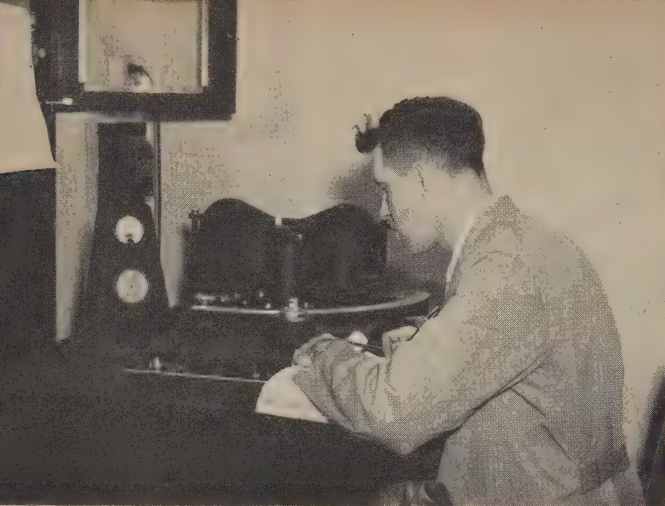
Family Allowances, Old Age Security, Old Age Assistance, Disability and Blindness Allowances, Unemployment Insurance and Assistance, Mothers' Allowances and Workmen's Compensation Programs constituted a bulwark against the principal threats to income security for a large number of persons.

## Health in Canada

The sustained high birth rate since the end of the War (28.4 in 1955) together with a steadily declining death rate (8.2 in 1955) has produced a net increase of two and one-half million native-born Canadians over the past ten years. In the same period, the average age of death has been raised by four years. The female fertility rate is higher than at any time in the past thirty years and during the same period infant and maternal mortality rates have been reduced by 40 p.c. and 70 p.c., respectively.

Improvement in health is related to improvement in living standards in recent years as well as to advances in medical science. Better nutrition, better housing and better hygienic control of environment have all contributed greatly to improvement of health conditions. As in other countries, the most spectacular progress has been made against the infectious diseases. Vaccination has wiped out smallpox and helped to control whooping cough. Salk vaccine has been used effectively against poliomyelitis, and BCG in controlling tuberculosis; the death rate for tuberculosis alone has been reduced by 80 p.c. over the past ten years. The recent detection and successful use of vaccine against the adeno-viruses (febrile respiratory conditions) has opened new fields in the control of virus infections. The development of broad spectrum antibiotics and other chemo-therapeutic agents has dramatically reduced morbidity and mortality from many bacterial and virus diseases. Infectious diseases now account for less than 2 p.c. of all deaths.

Increasing control of infectious diseases has accentuated the substratum of illness resulting from degenerative processes. Heart and other circulatory conditions, cancer, stroke and other central nervous system diseases now



*The Industrial Health Laboratory of the Department of National Health and Welfare works with provincial authorities and with industry to safeguard and advance the health of Canadian workers. This X-ray spectrometer detects and measures silicosis-producing dust in air samples.*

account for two-thirds of all deaths. In the past six years, heart disease and respiratory cancer deaths have increased among the male population by one-fifth and one-half, respectively. The Survey of Permanent Physical Disabilities carried out as a part of the Canadian Sickness Survey of 1951 disclosed that heart disease, arthritis, rheumatism, blindness, deafness, stroke, and other conditions affecting the central nervous system accounted for nearly half of the approximately one million Canadians estimated to be suffering at least some degree of permanent disability. Accidents have proved an increasingly important source of disability. Motor vehicle accidents, causing nearly three thousand deaths and over sixty thousand injuries yearly, are the most serious and over four hundred thousand injuries are reported annually by industry. Mental illness also continues to be a severe problem, with more than sixty thousand persons in mental institutions and many more receiving treatment through clinics and general hospitals.

Medical research has produced treatment methods which contribute greatly towards the control of chronic disease. Insulin and ACTH, valuable drugs in endocrine therapy, owe much to research in Canada for their development. These and other new drugs have greatly helped the control of such conditions as diabetes, arthritis, epilepsy, and cretinism. The new tranquilizing drugs have made a considerable contribution to the treatment of mental illness and hypertensive disease. But even with the rapid development of facilities and treatment the average Canadian still faces many health problems. The Canadian Sickness Survey showed that four out of every five Canadians had some ailment during the year and that at least some interruption to activity because of illness was suffered by over half the population, with about one person in ten being hospitalized during the year. About two-fifths of all illnesses were colds or influenza.

## **Health Services**

The scope and nature of public health services have been continually evolving since the first provincial board of health was established in Ontario in 1882 and the first provincial health department in New Brunswick in 1918. The initial acceptance of public responsibility for environmental

services, inevitably expanded to include increasingly comprehensive control of communicable disease, has in turn given way to the modern conception of public health as a buttress and support to the hospitals and to medicine, the essential foundation on which all health care is built.

The public health services developed in response to this conception are a complex interweaving of local, provincial and federal effort, in which direct responsibility rests with the provincial and local governments, assisted by national and local voluntary agencies. Federal responsibility has been confined constitutionally and by tradition to special programs of a nation-wide nature and to the provision of assistance to the provinces.

**Federal Services.**—Federal participation in health matters is largely centred in the Department of National Health and Welfare, with important treatment

*Doctor attached to the hospital at Fort Simpson, N.W.T. attends Slave Indian patients.*



*Latest equipment in a new heart unit at Toronto General Hospital permits better diagnoses and treatment of diseases of the heart and blood vessels.*





programs being administered by the Department of Veterans Affairs and the Department of National Defence. The National Research Council makes grants in support of medical research and the Department of Agriculture has certain health responsibilities connected with food production.

The Department of National Health and Welfare has jurisdiction in such matters as control of food and drugs including narcotics, quarantine and immigration medical services, the carrying out of international health obligations and the provision of health services to Indians and Eskimos, sick mariners and other groups. It provides financial assistance to the provinces through the National Health Program, serves in an advisory and co-ordinating capacity to them, and makes grants to national voluntary agencies.

Since 1948, federal financial assistance has been provided through the National Health Program for the extension and development of provincial health and hospital services. Funds are made available for general public health, tuberculosis control, mental health, venereal disease control, cancer control, services for crippled children, professional training, public health research, hospital construction, laboratory and radiological services, medical rehabilitation and child and maternal health. During the first eight years of the Program, the Federal Government has expended over \$190,000,000 on the extension of health and hospital services.

**Provincial Services.**—Provincial programs are administered through provincial and local health departments and by health units serving counties or groups of municipalities. Most provinces operate laboratories and provide preventive and treatment programs for venereal disease, tuberculosis, mental illness, cancer and other conditions. There has been increasing provincial participation in general hospital-care insurance programs, grants to hospitals and health-care services for public assistance recipients.

The larger municipalities provide a range of basic public health services including environmental sanitation, communicable disease control, child, maternal and school health services, public health nursing, health education and vital statistics. They participate, particularly in the eastern provinces, in the costs of hospital care and supply medical services to indigents. Some 158 full-time local health units or districts and 30 urban health departments serve about 11,500,000 persons, almost 75 p.c. of Canada's total population.

The most successful efforts to control specific diseases have been the mass immunization programs undertaken by provincial and local health departments. Several provinces provide free treatment and rehabilitation services for poliomyelitis, most provide substantially free care for tuberculosis and all supply free diagnosis and treatment of venereal disease.

Until recently, public mental health programs involved chiefly the treatment and custodial care of persons committed to mental institutions. Treatment has been hampered by lack of staff and facilities and shortages of qualified personnel. Although some progress has been made in increasing the number of mental hospital beds and in the development of community clinics and psychiatric units in general hospitals, the provision of adequate mental health services remains a most severe problem.

Expansion of hospital facilities has been rapid in the postwar period. Growth has been stimulated by the federal-provincial Hospital Construction

Grant under which the Federal Government may contribute up to \$1,000 for each approved active treatment bed, \$1,500 for each chronic or convalescent bed including beds for tuberculosis or mentally ill patients, and additional amounts for specified auxiliary facilities; federal contributions must be matched by the province concerned. Beds approved for construction to the end of 1956 included 34,868 for active treatment patients, 6,009 for chronic and convalescent patients, 15,364 for the mentally ill, 4,331 for tuberculosis, 7,735 bassinets and 10,316 nurses' beds.

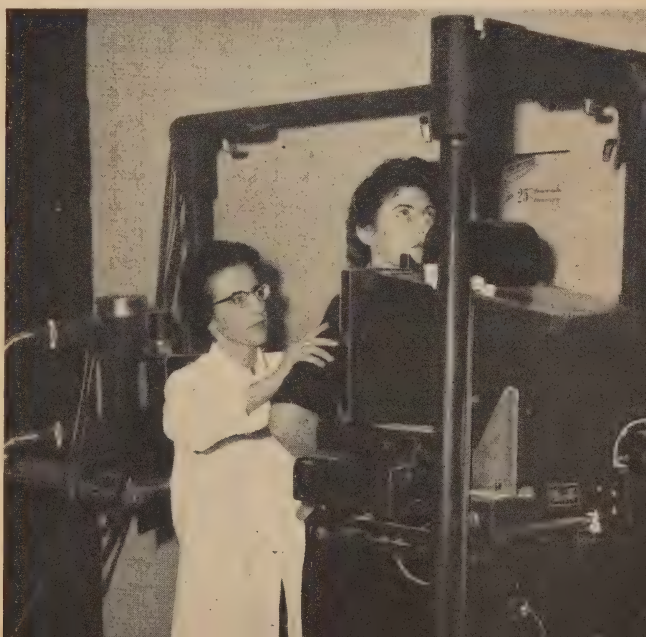
## ***Hospital Statistics***

The statistical data on the institutional aspects of health, published annually by the Dominion Bureau of Statistics, include detailed information on the different types of institution, on size, ownership, cost of operation, sources of revenue, movement of patients, personnel, and services rendered. Because mental illness and tuberculosis are especially important in the public health field, additional details are given on the patient population in mental institutions and tuberculosis sanatoria.

In 1955, Canadian hospitals had 1,075 beds for every 100,000 of the population. Of this bed capacity, 89.6 p.c. was available in public hospitals, that is, in hospitals that are not operated for profit, that accept all patients regardless of ability to pay, and that are recognized as public hospitals by the province in which they are located. Private hospitals, those that ordinarily restrict their admissions to patients paying for the care provided at rates determined by the management, accounted for 2.4 p.c. of the bed capacity. The remaining 8.0 p.c. was in federal hospitals operated for special purposes related to federal departmental administration such as the care of war veterans, members of the Armed Forces, Indians and immigrants.

Of the 2,259,377 admissions in 1955 to Canadian hospitals, 2,177,738 or 96.4 p.c. were to general hospitals, 1.0 p.c. were to mental institutions and 0.8 p.c. to tuberculosis institutions. However, only 44.6 p.c. of the average

*Free diagnostic services for tuberculosis, operated under provincial, municipal or voluntary auspices, have been greatly effective in controlling the disease. The compulsory testing of employees in many industries, especially those connected with the preparation and handling of food, is becoming prevalent throughout the country.*



daily population of all hospitals was in general hospitals. Mental institutions accounted for 41.2 p.c. and tuberculosis institutions for 8.5 p.c. These differences in proportion are explained by the greater turnover of patients in general hospitals where the average stay was approximately eleven days as compared with over ten months in tuberculosis institutions.

### Summary Statistics of Hospitals, 1955

Item	General	Special	Mental	Tuber- culosis	Total
	No.	No.	No.	No.	No.
<b>Public Hospitals—</b>					
Number reporting.....	781	77	70	55	983
Bed capacity.....	71,699	10,631	54,327	13,735	150,392
Average daily population.....	55,973	8,837	62,533	12,049	139,392
Admissions.....	2,044,727	40,723	21,525	16,461	2,123,436
<b>Private Hospitals—</b>					
Number reporting.....	55	120	4	1	180
Bed capacity.....	1,067	2,458	431	21	3,977
Average daily population.....	2,562 <sup>1</sup>	2	399	1	2,962
Admissions.....	49,376 <sup>1</sup>	2	1,954	1	51,331
<b>Federal Hospitals—</b>					
Number reporting.....	36	12	—	7	55
Bed capacity.....	11,390	821	—	1,206	13,417
Average daily population.....	9,635 <sup>1</sup>	2	—	959	10,594
Admissions.....	83,635 <sup>1</sup>	2	—	975	84,610
<b>All Hospitals—</b>					
Number reporting.....	872	209	74	63	1,218
Bed capacity.....	84,156	13,910	54,758	14,962	167,786
Average daily population.....	68,170	8,837	62,932	13,009	152,948
Admissions.....	2,177,738	40,723	23,479	17,437	2,259,377

<sup>1</sup> Includes general and special hospitals.

<sup>2</sup> Not available.

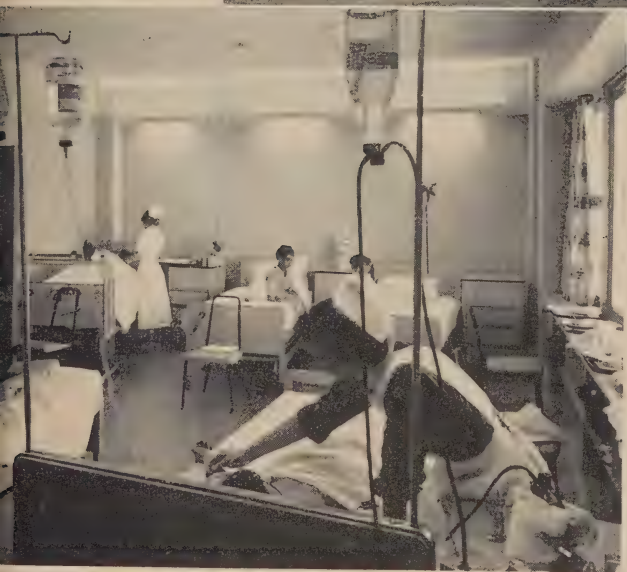
### Personal Health Care

Personal health care and public health services are estimated to have cost the Canadian public over \$1,000,000,000 in 1955, of which close to \$500,000,000 was for hospital care. General and allied special hospitals accounted for approximately two-thirds of hospital costs, mental and tuberculosis institutions and federal hospitals for one-third. Prepaid hospital care is provided through public insurance programs in British Columbia, Saskatchewan and Alberta. In Newfoundland, the provincially operated Cottage Hospital Plan makes hospital care and the services of physicians to both in- and out-patients available to almost half the population. About 20 p.c. of the population of Canada was well covered under public hospital plans in 1955, with another 44 p.c. having some degree of coverage.

It is estimated that in 1955 approximately 38 p.c. of the population had purchased insurance for the payment of physicians' bills; in 1954 payments by these agencies on behalf of their membership represented about 30 p.c. of all payments made to physicians by patients directly or on their behalf by insurance plans. Public medical care services are also provided under a variety of arrangements: by the Federal Government to members of the Armed Forces, to veterans for service-connected disability, to sick mariners, and to Indians and Eskimos; by some provincial governments to sufferers from specific diseases such as cancer, tuberculosis, mental illness and poliomyelitis as well as, in some provinces, to public assistance recipients; and by



Older hospital buildings are being replaced in all Canadian cities and those of later vintage modernized and extended to keep up with growing populations and advances in medical science. The Winnipeg Children's Hospital late in 1956 moved into new quarters completely up-to-date in every respect.



Nurses and doctors have plenty of space to work in the new five-bed wards. The colour scheme and gay curtains are part of the therapy design and the rooms are comfortable with their thermopane windows and sound-proof ceilings.

municipalities to indigents not otherwise covered, as well as to residents of certain municipalities in Western Canada under municipal doctor schemes.

Most Canadians purchase dental services and home nursing care directly, although home care is often provided through health agencies. School dental services are available in some localities. Drugs to non-hospital patients are also purchased privately.

## Rehabilitation Services

Services for the rehabilitation of disabled persons have been steadily strengthened since the National Conference on the Rehabilitation of the Physically Handicapped in 1951. The Federal Government and nine provinces have signed agreements to provide financial assistance for the co-ordination

of rehabilitation programs, national and provincial co-ordinators have been appointed, a Medical Rehabilitation Grant has been added to the National Health Grant Program and other services financially assisted.

During 1955, following the receipt of specialized services, upwards of 1,000 persons were rehabilitated to employment and programs were under way to make medical, psychosocial and vocational rehabilitation services available to increasing numbers of people. In four provinces medical rehabilitation services have been purchased on behalf of indigents and in eight provinces training selection instituted. Three provincial Workmen's Compensation Boards have built new rehabilitation centres. Large national agencies such as the Council for Crippled Children and Adults, the Canadian Arthritis and Rheumatism Society and the Canadian National Institute for the Blind have substantially expanded their services. New voluntary facilities and services have been established with support from federal-provincial grants and private sources such as service clubs. This has been accompanied by increased interest on the part of hospitals, professional groups, management and labour as well as health and welfare agencies.

## Welfare

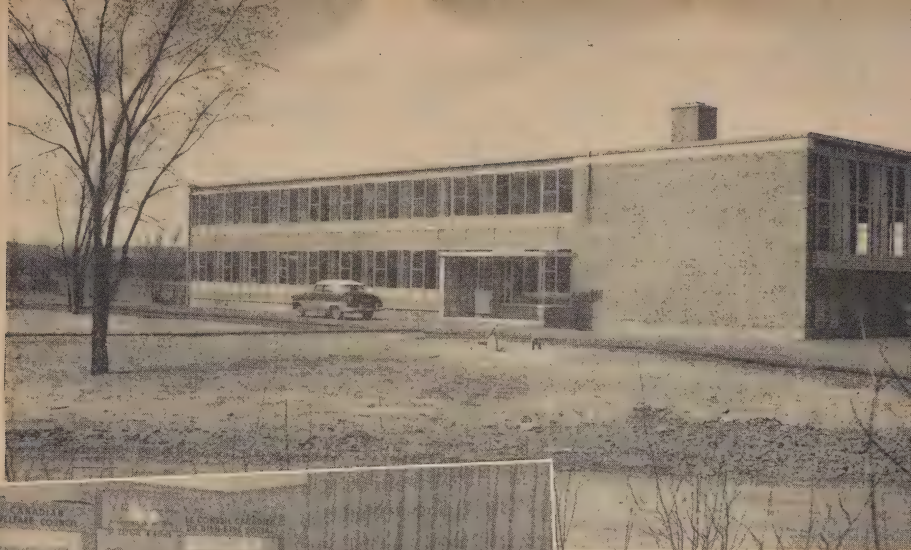
The Welfare needs of Canadians before the turn of the century were met largely by charitable institutions developed usually under private or religious auspices. Since that time, however, the trend has been away from institutional care, the emphasis shifting to income maintenance programs and to the provision of services designed to assist individuals in meeting problems characteristic of an increasingly industrialized society.

Social developments during the past thirty years have created welfare and security problems that could be met only at the higher levels of government and it is in federal and joint federal-provincial programs that the greatest expansion has taken place. At the provincial level, too, there has been a substantial broadening of services, particularly for the protection and care of children. Most provinces have delegated a number of welfare responsibilities to the municipalities or to voluntary agencies. General assistance or relief is usually administered at the municipal level and other programs,



Much progress has been made, particularly since the end of the War, in the physical and mental rehabilitation of handicapped persons. With new methods of treatment, new mechanical aids and perceptual training many persons once considered hopelessly invalided are able to live a somewhat normal life.





*Work for human welfare in Canada is diverse and many are the organizations and individuals engaged in it. The Canadian Welfare Council, with headquarters at Ottawa, plays a key part in the orderly and adequate development of these services and, by co-ordinating their efforts through the exchange of ideas and experiences, providing contact with national resources and disseminating information, enables them to work together.*

depending on the size, structure and traditions of the local community, may include the provision of welfare services for children, families, the aged, the ill, transients, and those with acute housing problems. Methods of financing vary considerably but most provinces share the costs of municipal services in organized areas and assume the total cost in unorganized territories.

The expansion of government services has been paralleled by an equally significant development in the voluntary field. Relieved of most of the financial burdens of providing maintenance, voluntary agencies have been in a better position to develop other types of essential community service, both those that are broadly preventive and those designed to aid people in dealing with problems of adjustment and relationship in time of individual or family crisis. Services have been expanded and improved in family welfare and child welfare, including specialized institutional care for children, social work in hospitals and clinics, programs for the aged, correctional care, rehabilitation and recreation. Community chests and federated funds in some 75 areas centralize the financial campaigns of welfare and related agencies, and welfare councils are promoting the better co-ordination and use of community resources in over 30 Canadian cities. The Canadian Welfare Council, a national association of public and private agencies, provides a means of



co-operative planning and action across the country and serves as a link between voluntary agencies and between the public and voluntary fields.

Most federal and federal-provincial social security programs are under the jurisdiction of the Department of National Health and Welfare or the joint jurisdiction of that Department and the provinces, and are described in the following paragraphs. Certain programs are administered by other federal departments.

### Federal Programs

*Family Allowances.*—In general, all children under 16 years of age who are resident in Canada are eligible for Family Allowances. The allowances, which were established in 1945, are paid by the Federal Government, involve no means test and are not considered as income for tax purposes. Allowances are paid at the monthly rate of: \$5 for children under six years; \$6 for children six to nine years; \$7 for children ten to twelve years; and \$8 for children thirteen to fifteen years. In June 1956, allowances were paid in respect of some 5,425,000 children in 2,279,100 families and expenditures totalled about \$393,300,000 for the year.

After Sept. 1, 1957, the monthly rates will be \$6 for children under six years and \$8 for those ten to sixteen years.

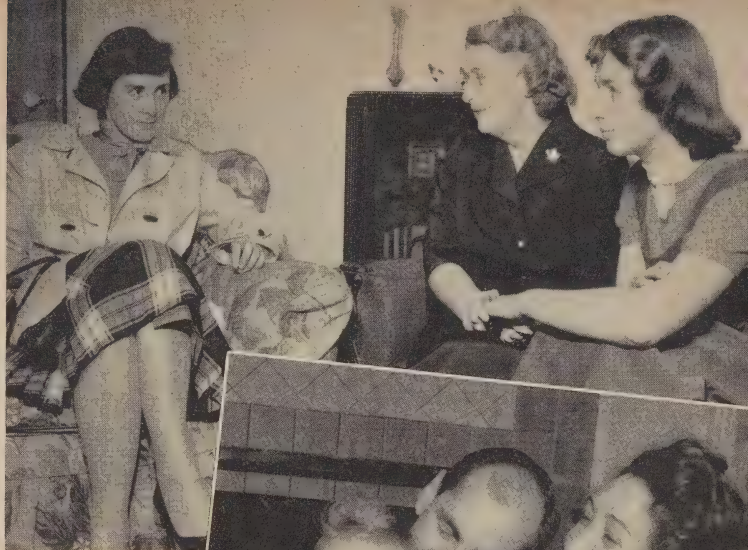
*Old Age Security.*—A pension of \$40 a month is paid by the Federal Government to all persons aged 70 or over who have been resident in Canada at least twenty years. The amount is supplemented in some provinces on a means-test basis. The pension is financed through a 2-p.c. sales tax on net corporation income and, subject to a limit of \$60 a year, on individual net taxable incomes, and by loans or grants from general revenue. In June 1956, pensions were paid to some 781,000 persons; expenditures were about \$375,000,000 in 1956.

Effective July 1, 1957, the monthly payment will be increased to \$46.



Four of thousands of the nation-wide "assembly line" of volunteer workers who produce vital relief supplies for the Red Cross. These women turn out tons of clothing, bedding and hospital supplies each year for distribution at home and abroad.

e individual care  
eceived in a sup-  
vised foster  
ome is considered  
superior to institu-  
tional care for  
he homeless child  
who has been  
made a ward of  
he government.



om ten to twelve thousand children  
are adopted in Canada each year.  
Great care is taken to place each child  
in the environment to which he is  
mentally and hereditarily suited.



## Federal-Provincial Programs

*Old Age Assistance.*—Assistance of up to \$40 a month is paid to needy persons aged 65 to 69 years who have been resident in Canada for at least twenty years. The Federal Government reimburses the province for 50 p.c. of \$40 per month or of the allowance, whichever is less. The province administers the program and in some cases provinces or municipalities supplement this amount. Total annual income, including assistance, cannot exceed \$720 for a single person, \$1,200 for a married couple, or \$1,320 if a spouse is blind. In June 1956, 92,630 persons or 20.5 p.c. of the population aged 65 to 69 were in receipt of Old Age Assistance; the federal contribution toward that assistance was about \$20,700,000 in 1956.

Effective July 1, 1957, the monthly payment will be increased to \$46.

*Blindness Allowances.*—Allowances of up to \$40 a month are paid to needy persons who are blind, aged 18 or over and who have been resident in Canada for at least ten years. The Federal Government pays 75 p.c. of \$40 per month or of the allowance, whichever is less. The province administers the program and in some cases provinces or municipalities supplement the allowance. Total annual income, including the allowance, may not exceed

\$960 for a single person, \$1,160 for a single person with one or more dependent children, \$1,560 for a married couple one of whom is blind, and \$1,680 for a married couple when both are blind. In June 1956 there were some 8,270 persons in receipt of the allowance. The annual federal contribution towards blindness allowances is about \$3,000,000.

Effective July 1, 1957, the monthly payment will be increased to \$46.

*Disabled Persons Allowances.*—Allowances of up to \$40 a month were commenced in 1955 to needy persons who are totally and permanently disabled, aged 18 or over and resident in Canada for at least ten years. The Federal Government pays 50 p.c. of \$40 per month or half the allowance, whichever is less. The province administers the program and in some cases provinces or municipalities supplement the allowance. Total annual income, including the allowance, may not exceed \$720 a year for a single person, \$1,200 for a married couple or \$1,320 where the spouse is blind. In June 1956 there were 27,757 recipients of allowances. The Federal Government's contribution was about \$6,800,000 in 1956.

Effective July 1, 1957, the monthly payment will be increased to \$46.

*Unemployment Assistance.*—In 1956 Parliament passed the Unemployment Assistance Act under which the Federal Government will reimburse each co-operating province for one-half the cost of assistance to needy unemployed in excess of 0.45 p.c. of the provincial population, with certain adjustments for special situations. The scale and conditions of payment are determined by the provincial and municipal authorities and the payments are administered by them.

### Provincial Programs

*Mothers' Allowances.*—Allowances on behalf of needy mothers and their dependent children are provided by all provinces. Assistance is granted to widows, mothers with husbands in mental hospitals and, in nine provinces, to mothers who are deserted or whose husbands are disabled. Some provinces



Each of Canada's 781,000 senior citizens who has reached the age of seventy years receives a monthly pension to supplement his life savings.



provide also for mothers with husbands in penal institutions and to divorced, separated and unmarried mothers. To be eligible an applicant must be caring for one or more children of eligible age, and must meet specified conditions of character or competence, need, residence and, in six provinces, of nationality. The maximum monthly allowance payable to a mother with one child varies by province from \$25.00 to \$69.50. An additional amount is paid for each subsequent child and in some provinces for a disabled father in the home. Certain provinces have established a maximum amount payable to a family and the majority grant supplementary aid where special need is apparent. As at Mar. 31, 1955, approximately 40,500 families with some 109,000 children were receiving mothers' allowances. The total cost of these allowances for the fiscal year 1955 was approximately \$22,500,000.

*Widows' Pensions.*—In Alberta, under the Widows' Pensions Act, pensions of up to \$40 a month may be paid, subject to certain conditions of need and residence, to widows aged 60 to 64 and to wives in this age group whose husbands are committed to mental hospitals or who have deserted.

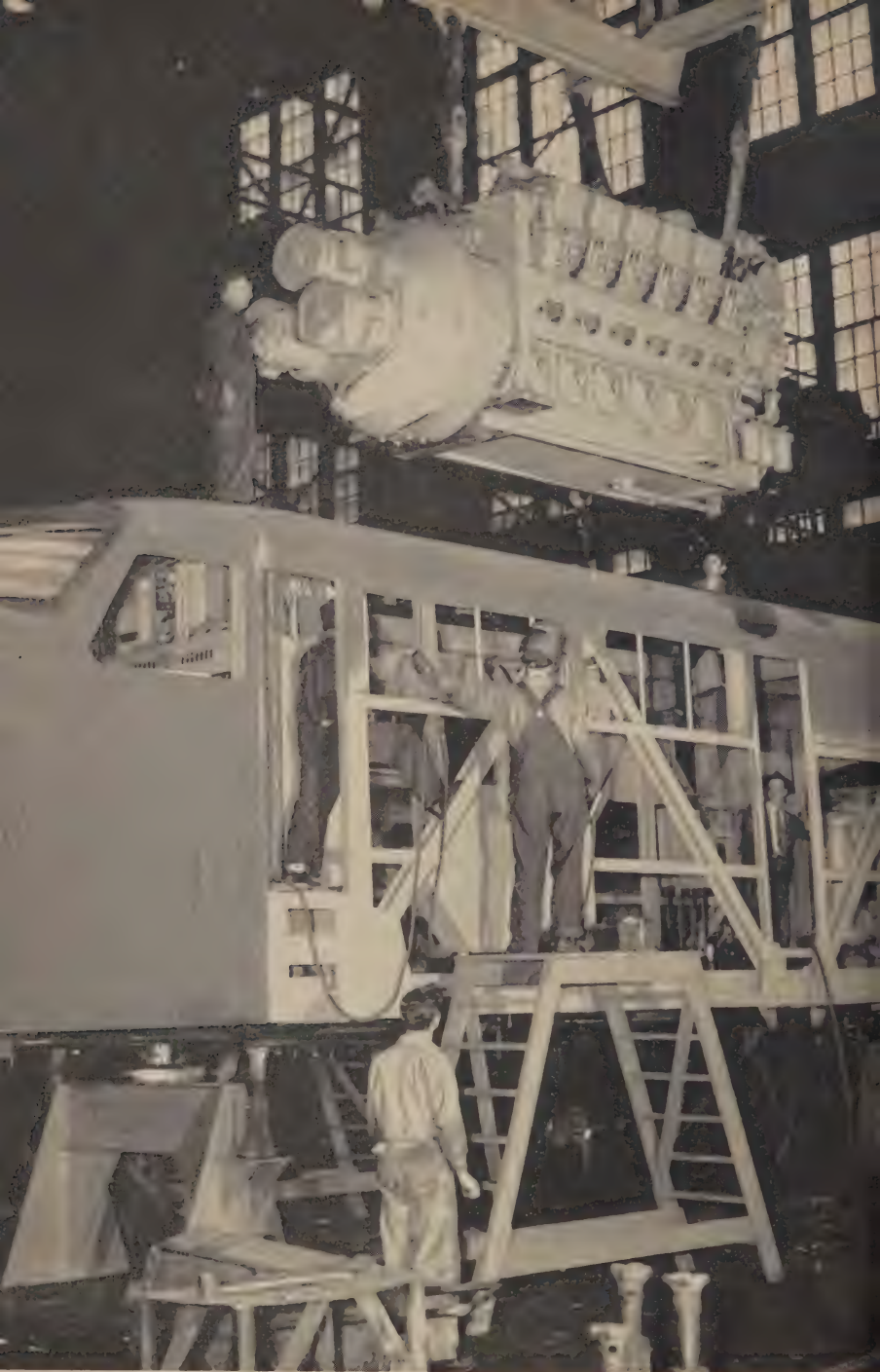
## **Veterans Affairs**

Most of Canada's war veterans have been assimilated into civilian life, the assistance now required being mainly concerned with allowances, medical treatment, land settlement, rehabilitation and welfare, which is the responsibility of the Department of Veterans Affairs, and the adjustment and payment of pensions which is under the jurisdiction of the Canadian Pension Commission. At the end of December 1956 there were 159,614 disability pensions being paid to veterans and 33,747 pensions being paid to dependants of deceased service men. The year's expenditure for these pensions amounted to about \$130,454,000. At the end of 1956 there were 54,736 recipients under the War Veterans Allowance Act, 39,523 were veterans and therefore eligible also for free medical treatment for any condition. Expenditure for allowances during 1956 was \$40,854,000 and an additional \$661,446 was paid to recipients who qualified for grants from the Assistance Fund.

Medical treatment is provided in DVA hospitals and in public general hospitals and other institutions under contractual arrangements. At Dec. 31, 1956 the Department was operating 11 active-treatment hospitals with 8,720 beds, two health and occupational centres with 365 beds, and three homes for veterans who require domiciliary care.

Substantial numbers of veterans are still being assisted to settle on the land, either as farmers or small holders, or to become commercial fishermen. At the end of 1956 the cumulative total of veterans who had received such assistance was 72,577 and the public investment made on their behalf was about \$353,736,000. Their payment record is very satisfactory. Financial assistance is also given to veterans who wish to build their own homes and are approved for loan under the National Housing Act.

Rehabilitation and welfare needs have diminished but special interest is still taken in the training and placement of seriously disabled veterans, the employment of older veterans and the education of children of war dead.



*The dieselization of Canada's railways has involved the gradual conversion of shops and servicing facilities and the re-arrangement of work programs from steam to diesel maintenance.*

# Labour

CANADA'S industries have experienced a spectacular development since the turn of the century. In 1901 Canadian workers were engaged largely in the production of animal products, field and vegetable crops, fish, lumber and gold. The labour force, less than two million strong, was composed mainly of farmers, merchants and craftsmen working in most instances on their own account. Today well over five and one-half million Canadians, men and women, ranging from unskilled labourers to highly trained technicians and executives and from workers on the farm to those in large manufacturing plants, provide the nation with goods and services.

The productive capacity of the Canadian economy has greatly increased. New raw materials have come into use, such as oil, aluminum and titanium, making possible the production of goods not available before. Synthetic materials like nylon and artificial rubber have become essential to everyday life. New machines have been developed to aid the worker in producing more and better goods with less effort. The present era of electronics and automation is relieving manpower of repetitive and often strenuous jobs, and advancing techniques and organizational methods in manufacturing and distribution have also had their effect on bettering production and extending services.

These developments, together with higher wages, better working conditions, higher educational standards and greater emphasis on vocational training, have helped to raise the standard of living for the whole community of workers. Advances in human relations in industry have also assisted the Canadian worker to reach a fuller participation in the national life.

The pace of development over the past fifty years has not, of course, been steady. It was slowed down or interrupted on several occasions. Today, however, a better understanding of the operation of the economy together with the institution of new social assistance such as unemployment insurance, workmen's compensation and old age security provides a more even flow of income to Canadians and this, in turn, helps to balance economic development.

Seasonal unemployment caused by cold weather, and to some extent by consumer buying habits still results in serious annual loss to the Canadian economy. Some winter slow-down is unavoidable, but it is possible by concerted effort to reduce the extent of winter unemployment. New techniques and materials have made winter construction work more practicable and the Government as well as industrial establishments are now planning their programs so that as much work as possible may be done during winter months. Further co-operation by industry and the public can make this program highly effective in keeping winter unemployment to a minimum.

Development in the field of labour has been assisted by legislation at both federal and provincial levels. Laws have been enacted to set minimum standards for hours of work, wages and many other conditions of employment. Most Canadian workers, however, enjoy conditions of employment far better than those required by law. The right of workers to belong to labour unions of their own choosing is protected by law. Union membership has grown





*In the forests of central British Columbia primary conversion, handled at the logging site by the use of a tractor, a fork-lift truck and a portable saw, has proven quite successful.*

embody joint labour-management decisions on wages and conditions of employment. Since 1947 there has been a steady growth in the number of collectively bargained group health insurance and pension plans. In the past two years a number of employers and unions have also negotiated unemployment benefit plans to supplement payments under the Unemployment Insurance Act. Until a few years ago collective agreements were as a rule re-negotiated each year, but more recently there has been a trend toward two-year agreements with specified wage increases provided for each year. In the vast majority of cases, collective agreements are concluded without work stoppage, though sometimes with the assistance of government conciliation services. Only about one-sixth of one per cent of the estimated total working time in all Canadian industry was lost by strike action in 1955.

## ***The Labour Force***

The labour force of Canada, as measured by sample surveys conducted by the Dominion Bureau of Statistics, includes those people who have jobs plus those who do not have jobs and who are looking for work. "Job" in this sense means work for pay or profit, or unpaid work which contributes to the running of a farm or business operated by a relative. Thus a coal-miner or a shopkeeper is considered to be in the labour force but a housewife or a student is not. The labour force is not a fixed group of people. It is constantly changing, as new workers enter and old ones leave.

About three out of four persons in the labour force are male and almost one-half of those in the labour force are from 25 to 44 years of age; the average female worker is considerably younger than the average male worker. Occupationally, one worker out of seven is in agriculture; geographically, about two

out of three live in Ontario or Quebec. The percentage of the labour force to the total population 14 years of age or over is lower in Newfoundland, the Maritime Provinces and British Columbia than in the rest of the country. In non-agricultural industries, which employ 4,880,000 persons of whom one-quarter are women, about 88 p.c. of the men and 93 p.c. of the women are paid employees. In agriculture, on the other hand, paid employees form a relatively small element—hardly more than one worker in seven, even during harvest season.

### Industrial Distribution of Persons with Jobs, by Sex, Week Ended Oct. 20, 1956

(Thousands of persons 14 years of age or over)

Industry	All Persons with Jobs			Paid Workers		
	Male	Female	Both Sexes	Male	Female	Both Sexes
Agriculture.....	747	47	794	102	12	114
Forestry.....	132	1	134	115	1	117
Fishing and trapping.....	19	1	19	1	1	1
Mining and quarrying <sup>2</sup> .....	118	1	123	116	1	121
Manufacturing.....	1,132	304	1,436	1,067	298	1,365
Construction.....	452	1	461	388	1	396
Transportation <sup>3</sup> .....	371	62	433	342	62	404
Public utilities.....	62	1	68	62	1	68
Trade.....	605	271	876	469	231	700
Finance, insurance and real estate.....	105	84	189	91	82	173
Service.....	585	556	1,141	504	517	1,021
<b>Totals.....</b>	<b>4,328</b>	<b>1,346</b>	<b>5,674</b>	<b>3,262</b>	<b>1,223</b>	<b>4,485</b>

<sup>1</sup> Fewer than 10,000.  
munication.

<sup>2</sup> Includes oil wells.

<sup>3</sup> Includes storage and com-

automatic equip-  
ment in use in  
a large paper box  
factory. The forest  
industry and the  
industries depend-  
ent on the forest  
for their raw ma-  
terials give em-  
ployment to tens  
of thousands of  
Canadians—about  
one out of every  
eleven is directly  
or indirectly de-  
pendent on the  
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lihood.



# Occupational Distribution of Persons with Jobs, by Sex, Week Ended Oct. 20, 1956

(Thousands of persons 14 years of age or over)

Occupation	All Persons with Jobs			Paid Workers		
	Male	Female	Both Sexes	Male	Female	Both Sexes
Managerial.....	411	46	457	192	16	208
Professional.....	266	168	434	228	164	392
Clerical.....	276	397	673	276	391	667
Transportation.....	366	<sup>1</sup>	371	339	<sup>1</sup>	344
Communication.....	43	36	79	43	36	79
Commercial.....	217	152	369	216	134	350
Financial.....	46	<sup>1</sup>	49	33	<sup>1</sup>	35
Service.....	235	284	519	220	260	480
Agricultural.....	755	47	802	110	12	122
Fishing, logging and trapping.....	123	<sup>1</sup>	124	96	<sup>1</sup>	97
Mining.....	76	<sup>1</sup>	77	75	<sup>1</sup>	76
Manufacturing and mechanical <sup>2</sup> .....	792	186	978	759	182	941
Construction.....	351	<sup>1</sup>	353	307	<sup>1</sup>	309
Labourers and unskilled workers (not agricultural, fishing, logging or mining).....	371	18	389	368	17	385
<b>Totals.....</b>	<b>4,328</b>	<b>1,346</b>	<b>5,674</b>	<b>3,262</b>	<b>1,223</b>	<b>4,485</b>

<sup>1</sup> Fewer than 10,000.

<sup>2</sup> Includes stationary enginemenn and occupations associated with electric-power production.

**Women in Industry.**—Employment opportunities for women have expanded with the growth of the Canadian economy. The most notable developments in recent years are the increase in the employment of married women, the concentration of growth in those occupations in which women have been traditionally employed and the reduction in the proportion of teen-age girls in the labour force. Of all the women with jobs in Canada at Oct. 20, 1956, 663,000 were single, 546,000 were married, and 137,000 were widowed, divorced or legally separated.

## Women in the Canadian Labour Force, Oct. 20, 1956

Region	Women in Population 14 Years or Over <sup>1</sup>	Women in Labour Force <sup>2</sup>	P.C. of Women in Labour Force	P.C. of Women to Total Labour Force in Region
	No.	No.		
Atlantic.....	578,000	115,000	19.9	21.0
Quebec.....	1,549,000	367,000	23.7	22.5
Ontario.....	1,880,000	555,000	29.5	26.3
Prairie.....	936,000	214,000	22.9	21.2
British Columbia.....	472,000	113,000	23.9	23.9
<b>Totals.....</b>	<b>5,415,000</b>	<b>1,364,000</b>	<b>25.2</b>	<b>23.6</b>

<sup>1</sup> Excludes women inmates in institutions and Indian women on reserves.

<sup>2</sup> Women with jobs and those seeking work.

The proportion of working women in the older age groups has been increasing rapidly. The greatest growth has taken place in the age group 45 to 64, although the largest number are still to be found in the 25 to 44 age group.



The age distribution of women with jobs at Oct. 20, 1956, was: 14-19 years, 230,000; 20-24 years, 247,000; 25-44 years, 544,000; 45-64 years, 293,000; 65 years or over, 32,000.

## **Employment in 1956**

For most Canadian workers 1956 was a year of unequalled prosperity. Following a sharp upturn in economic activity in 1955, total output and income continued to expand at almost record rates throughout 1956. Job opportunities were abundant throughout Canada. The problems of the year were those arising from the scarcity of manpower and materials, for in many areas the rate of expansion tended to outstrip supplies of these resources.

While employment in 1956 did not increase at the previous year's record rate, it rose about as much as manpower and other resources would permit. In the third quarter it was 3 p.c. higher than a year earlier, and labour shortages were quite extensive in Ontario and the western provinces. In Quebec employment rose substantially but, except for logging and construction in some areas, the supply of available workers was adequate for most industries. The work force in the Atlantic region was also more fully employed than it has been for a good many years.

The abundance of job opportunities encouraged an increasing proportion of the adult population to take jobs, thus reversing the trend of the past few years. Until 1955 labour force participation was declining gradually. This was particularly noticeable in the younger and older age groups—a probable reflection of longer schooling and earlier retirement.

The upsurge in activity during 1956 has resulted in large employment gains in particular industries. Examination of average employment during the summer months shows that total non-agricultural employment increased

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*Precision inspection of purchased castings and forgings in the receiving department of an aircraft plant. To ensure quality control in the production of aircraft, the latest technological advances in the fields of chemistry and physics are applied by ultra-violet and X-ray examinations, and magnetic and ultra-sonic tests. All instruments and equipment are calibrated by scientific processes.*



by about 250,000 from the previous year. Manufacturing, construction, and the distribution and service industries accounted for more than 90 p.c. of this gain. Construction played a dynamic role in this expansion, the increase in employment of approximately 60,000 represented a gain of 14 p.c. in this industry, compared with about 5 p.c. in manufacturing.

It should not be forgotten, however, that in a number of industries the employment gains in 1955 and 1956 were attained in the wake of the losses that occurred during the period preceding the 1955 upturn. Thus in transportation and communication, for example, the number of workers increased by 28,000 during the year, but employment in mid-summer was only slightly higher than three years earlier. In manufacturing, employment in the summer of 1956 had increased about 10 p.c. from the low point reached in 1954, but the net gain since May 1953 was less than 3 p.c.

Many of the new jobs, not only in construction but in other industries too, were filled by former farm workers. In all, the net movement out of agriculture from the previous summer amounted to some 60,000 workers, about twice the average for the past ten years. As a result, farmers in many areas of the country experienced great difficulties in recruiting labour and in many cases had to resort to hiring urban workers for evening and weekend work during the harvest period.

The general average of weekly wages and salaries was \$63.53 during the first nine months of 1956, a new high 4.9 p.c. above 1955. The construction industry recorded a 9.1-p.c. rise but finance, forestry, mining, and services were also above the national average. The mining industry continued having the highest average of weekly wages and salaries—\$76.69 as compared with \$72.55 in 1955. Provincially, Alberta showed the greatest increase in average weekly earnings at 6.9 p.c., the other provinces recording advances ranging from 2.3 p.c. for Prince Edward Island to 5.7 p.c. for British Columbia. The average number of hours worked in manufacturing remained the same during 1956 as in 1955.

### *Index Numbers of Employment and Payrolls, and Average Weekly Wages and Salaries, by Province, 1955 and 1956*

(1949=100)

NOTE.—Figures are for the period Jan. 1 to Sept. 1.

Province	Index Numbers of—						Average Weekly Wages and Salaries		
	Employment			Payrolls					
	1955	1956	P.C. Change	1955	1956	P.C. Change	1955	1956	P.C. Change
							\$	\$	
Newfoundland.....	125.8	132.7	+ 5.5	181.1	199.6	+10.2	53.86	56.22	+ 4.4
Prince Edward Island..	109.3	115.1	+ 5.3	148.8	160.3	+ 7.7	45.92	46.96	+ 2.3
Nova Scotia.....	95.4	100.6	+ 5.5	129.2	141.1	+ 9.2	50.70	52.48	+ 3.5
New Brunswick.....	100.8	108.7	+ 7.8	138.3	156.2	+12.9	51.95	54.30	+ 4.5
Quebec.....	109.5	117.3	+ 7.1	154.9	174.3	+12.5	58.05	60.94	+ 5.0
Ontario.....	111.6	119.1	+ 6.7	159.3	177.6	+11.5	63.10	65.97	+ 4.5
Manitoba.....	103.7	106.9	+ 3.1	141.3	151.7	+ 7.4	57.93	60.28	+ 4.1
Saskatchewan.....	115.2	117.7	+ 2.2	160.6	172.3	+ 7.3	57.60	60.43	+ 4.9
Alberta.....	130.0	144.2	+10.9	180.3	213.8	+18.6	61.50	65.72	+ 6.9
British Columbia.....	108.8	118.8	+ 9.2	156.1	180.3	+15.5	65.38	69.12	+ 5.7
Composite.....	110.5	118.2	+ 7.0	156.6	175.7	+12.2	60.56	63.53	+ 4.9

# **Index Numbers of Employment and Payrolls, and Average Weekly Wages and Salaries, by Industrial Group, 1955 and 1956**

(1949=100)

NOTE.—Figures are for the period Jan. 1 to Sept. 1.

Industrial Group	Index Numbers of—						Average Weekly Wages and Salaries		
	Employment			Payrolls					
	1955	1956	P.C. Change	1955	1956	P.C. Change	1955	1956	P.C. Change
							\$	\$	
Forestry (chiefly logging).....	92.1	105.3	+14.3	139.0	168.0	+20.9	60.30	63.68	+ 5.6
Mining.....	112.3	120.6	+ 7.4	158.7	180.0	+13.4	72.55	76.69	+ 5.7
Manufacturing.....	108.0	114.3	+ 5.8	155.7	172.2	+10.6	62.98	65.80	+ 4.5
Durable goods.....	115.6	124.7	+ 7.9	166.1	187.0	+12.6	67.42	70.31	+ 4.3
Non-durable goods..	101.6	105.4	+ 3.7	145.4	157.6	+ 8.4	58.62	61.21	+ 4.4
Construction.....	109.0	124.8	+14.5	161.6	202.9	+25.6	61.43	67.03	+ 9.1
Transportation, storage and communication.	109.4	116.2	+ 6.2	146.2	160.3	+ 9.6	64.09	66.15	+ 3.2
Public utility operation	118.2	123.9	+ 4.8	174.5	190.2	+ 9.0	70.26	73.04	+ 4.0
Trade.....	116.1	123.4	+ 6.3	163.2	180.7	+10.7	52.20	54.41	+ 4.2
Finance, insurance and real estate.....	132.1	135.0	+ 2.2	175.2	191.3	+ 9.2	56.03	59.92	+ 6.9
Service.....	113.4	123.2	+ 8.6	156.8	179.1	+14.2	40.23	42.37	+ 5.3
<b>Composite.....</b>	<b>110.5</b>	<b>118.2</b>	<b>+ 7.0</b>	<b>156.6</b>	<b>175.7</b>	<b>+12.2</b>	<b>60.56</b>	<b>63.53</b>	<b>+ 4.9</b>

## **Indexes of Employment, Average Hours and Earnings in Manufacturing, by Month, 1955 and 1956**

Month	Employment Index (1949=100)		Average Hours Worked		Average Hourly Earnings		Average Weekly Wages	
	1955	1956	1955	1956	1955	1956	1955	1956
			No.	No.	cts.	cts.	\$	\$
Jan. 1.....	103.2	109.8	39.3	39.0	142.8	147.5	56.12	57.53
Feb. 1.....	103.6	110.2	41.0	41.2	142.7	147.3	58.51	60.69
Mar. 1.....	105.7	112.3	41.2	41.3	143.5	148.5	59.12	61.33
Apr. 1.....	106.5	113.4	41.1	41.1	144.3	150.5	59.31	61.86
May 1.....	107.3	114.1	41.2	41.4	145.4	151.1	59.90	62.56
June 1.....	109.3	115.4	41.0	40.9	145.5	151.9	59.66	62.13
July 1.....	111.6	118.0	40.9	41.2	145.0	152.7	59.31	62.91
Aug. 1.....	111.4	117.9	40.8	40.8	145.1	152.4	59.20	62.18
Sept. 1.....	114.0	118.0	41.2	41.1	143.8	152.1	59.25	62.51
Oct. 1.....	113.4	118.6	41.5	41.5	144.8	153.3	60.09	63.62
Nov. 1.....	112.8	118.6	41.7	41.6	145.4	154.7	60.63	64.36
Dec. 1.....	112.3	118.0	41.6	41.5	146.1	155.5	60.78	64.53
<b>Annual Average....</b>	<b>109.3</b>	<b>115.4</b>	<b>41.0</b>	<b>41.1</b>	<b>144.5</b>	<b>151.5</b>	<b>59.25</b>	<b>62.27</b>

## **Wage Rates, Hours of Labour and Working Conditions**

Indexes of wage rates of non-office employees are compiled by the Department of Labour but these indexes measure only the year-to-year changes in rates of wages in different industries and cannot be used to compare wage levels in one industry with those in another. The basic statistics are average straight-time wage rates or average straight-time piece-work earnings for selected occupations by industry and do not, therefore, include overtime or other premium payments. The information is collected by means of a survey of employers conducted as at Oct. 1 each year.



## Index Numbers of Wage Rates for Certain Main Groups of Industries, 1920-55

(Rates in 1949=100)

Year	Logging	Coal Mining	Metal Mining	Manu- fac- turing	Con- struc- tion	Steam Rail- ways	Tele- phones	Per- sonal Service	General Aver- age <sup>1</sup>
1920.....	65.9	57.8	56.9	47.0	57.5	63.6	60.9	45.2	52.3
1925.....	44.0	49.0	51.6	42.4	54.2	53.6	58.8	50.8	45.8
1930.....	45.1	49.5	51.9	43.8	64.7	58.8	62.5	52.3	48.8
1935.....	33.8	48.4	51.2	39.9	50.8	52.9	61.4	49.5	43.2
1940.....	48.5	52.1	56.9	47.9	56.7	58.8	66.9	54.1	50.8
1945.....	70.9	74.6	70.9	67.2	71.2	73.7	82.9	69.4	69.3
1950.....	97.0	102.8	106.8	106.1	104.8	105.1	104.8	102.9	105.5
1951.....	109.6	111.1	121.6	120.3	118.6	121.9	115.7	110.6	119.1
1952.....	133.3	124.0	130.1	128.4	128.6	136.8	128.4	117.6	127.7
1953.....	135.5	124.0	132.3	134.6	136.2	137.2	136.6	123.3	133.6
1954.....	138.0	123.5	136.7	138.5	140.0	137.8	147.6	128.6	137.9
1955.....	138.2	122.8	140.3	142.2	145.4	137.8	152.8	132.3	141.7

<sup>1</sup> Includes other main industries not shown in this table.

The trend toward the 40-hour week, usually a five-day schedule, continued between April 1955 and April 1956. In the latter month, 62 p.c. of the 800,000 plant workers in manufacturing establishments surveyed were on a work week of 40 hours or fewer and almost 86 p.c. were on a five-day week. Of the 205,000 office employees covered in manufacturing, 63 p.c. were on a work week of 37½ hours or fewer in April 1956 as compared with 60 p.c. a year earlier. The proportion of office employees on a five-day week (90 p.c.) was practically unchanged during the year.

Two vacation tendencies have been apparent since 1954—a trend toward shorter service requirements for two-week and three-week vacations and an increase in the practice of granting vacations of three weeks or longer. The proportion of plant workers in establishments granting two-week vacations after various periods of service was 92.3 p.c. in April 1956 as compared with 81.0 p.c. in October 1949. The proportion in establishments granting three-week vacations was 63 p.c. and 60 p.c. in the same comparison. Most plant workers receive three-week vacations after 15 years of service but the proportion with longer qualifying requirements is diminishing. Almost 99 p.c. of office workers in manufacturing enjoyed annual vacations of two weeks in 1956, most of them after one year or less of service; over 71 p.c. become eligible for three-week vacations usually after 15 years of service. About 10 p.c. of plant workers and almost 13 p.c. of office workers received four-week vacations, usually granted only after 25 years.

Establishments employing slightly less than 65 p.c. of the plant workers in manufacturing reported having pension plans for their non-office employees; the proportion of office employees was almost 79 p.c. Group life-insurance plans were available in establishments employing 87 p.c. of plant employees and 90 p.c. of office employees. Some type of plan providing cash compensation for wage loss caused by illness was available to most employees.

### Labour Legislation

Under Canada's federal system of government, labour laws may be enacted either by provincial legislatures or by Parliament depending on the nature of the employment. The field in which federal legislation applies

includes such industries as navigation and shipping; interprovincial transportation systems, air transport, telegraphs, radio, banking, and operations of federal Crown companies. Most of the employment in factories, mines, construction work, commercial firms and the service industries is subject to provincial legislation.

The general principles of labour relations legislation in Canada have not been greatly changed since they were established at the end of World War II by a federal Act in the federal field of jurisdiction and an Act in each province. Generally, these Acts assert the right of employees to belong to trade unions and an employer is required to recognize a representative union as the bargaining agent of the employees in the unit, and to negotiate with it concerning conditions of employment. Conciliation services are made available if the parties cannot reach an agreement, and a strike or lockout is prohibited until an effort has been made to resolve the differences by negotiation and conciliation. Collective agreements are binding on the union, the individual employees and the employer. Some variations have been introduced in some of the provincial Acts. The main development in recent years has been to make special provisions for the settlement of disputes for certain classes of employees performing public services where strike action to settle disputes is not consistent with the nature of the responsibilities. In 1956, for instance, the Manitoba Legislature passed an Act dealing with the negotiation of conditions of employment for teachers, providing for arbitration as a final means of settling disputes. Policemen and firemen are other groups for whom special provisions for dispute settlement have been made in a number of provinces.

Laws which prohibit discrimination in respect to employment by an employer or a trade union on grounds of race, colour, religion or national

*Workers using dangerous materials are well protected at all times. To prevent contamination from a lye vat, this operator wears special clothing that can be washed off quickly in a conveniently placed shower.*



origin are a recent development, having been enacted by six provinces and by the Federal Parliament since 1951.

Specific minimum standards are fairly generally established in the provincial field for the basic conditions of employment such as wage rates and hours of work. Minimum wage rates are set on the recommendation of a government board in every province except Prince Edward Island. In Alberta, where new rates were established in 1956, the general minimum weekly rate in centres of over 5,000 population is now \$30 for men and \$28 for women. In British Columbia, where rates are fixed by industry, the minimum rate for manufacturing was set during the year at 75 cents an hour for men and 60 cents for women. In general, minimum rates established in the other provinces tend to be somewhat lower.

Equal pay laws for men and women have been enacted by the Federal Government and by five provinces in the past five years. Five provinces have hours-of-work laws of general application. In Alberta, British Columbia and Ontario limits of eight hours a day and 44 or 48 hours a week are imposed, while in Manitoba and Saskatchewan the laws do not limit hours absolutely but require that overtime rates be paid after specified limits. In seven provinces, minimum wages and maximum hours in some industries are regulated through industrial standards or similar laws.

British Columbia in 1956 passed a new Annual Holidays Act to come into force on July 1, 1957, providing for a two-week vacation with pay after a year of employment for most workers in the province instead of one week as at present. Three other provinces provide for a two-week vacation after varying lengths of service—Saskatchewan after one year as in British Columbia, Alberta after two years and Manitoba after three years. A one-week vacation with pay is required in Alberta and Manitoba for workers who have worked for one year but have not completed the requirement for a two-week vacation. In Ontario, Quebec and New Brunswick, workers are entitled to a one-week vacation with pay after a year of employment.

Legislation, which may be federal, provincial and in some instances municipal, plays an important part in securing safe and healthy working conditions. In all provinces in which mining is carried on, laws designed to ensure the safest possible working conditions in mines are in effect. Factories Acts set standards aimed at reducing hazards in the working environment in a large part of industry. Steam boilers must meet certain standards, and only persons who hold certificates of competency may operate them. With respect to railways, a Board established by federal legislation has authority to issue safety rules having the force of law. Safety measures for the protection of seamen are prescribed in the general federal law respecting shipping. In construction, inspection by municipal inspectors plays a significant part.

Under a workmen's compensation law in each province, a worker who is disabled by an industrial accident or a disease caused by the nature of his employment is entitled to compensation. Compensation is based on the amount of earnings and, if the disability is permanent, upon the extent of the disability. While the worker is totally disabled, it is 75 p.c. of earnings in most provinces, subject to the provision that earnings above a specified amount (\$5,000 a year or less depending on the province) may not be taken into account. In fatal cases, widows, children or other dependants are awarded fixed monthly sums. Compensation and medical aid are payable



from an accident fund to which employers are required to contribute and which provides a system of mutual insurance.

Apprenticeship laws in all provinces provide for the training of young people in designated skilled trades through a combination of on-the-job training and class instruction. Most provinces have agreements with the Federal Government for financial assistance in promoting apprenticeship. In a few provinces legislation is in effect requiring tradesmen in certain designated trades to hold certificates of competency, without which they may not engage in the trade.

## **Labour Organization**

More than 1,250,000 men and women from Newfoundland to British Columbia are members of labour unions, an increase of almost 7 p.c. during 1956. In that year over 1,000,000 of these members were united into a central organization, the Canadian Labour Congress.

1956, at the largest labour convention ever held in Canada, the Canadian Labour Congress was founded, merging the Trades and Labour Congress of Canada and the Canadian Congress of Labour. For the first time in over 50 years a Prime Minister of Canada addressed a labour convention. The Rt. Hon. Louis St. Laurent was welcomed to the platform by the co-chairmen, Claude Jodoin and L. R. Mosher. Mr. Jodoin is the first president of the Congress.





Canadian industrialists concerned with the very real problem of providing sufficient technically and scientifically trained manpower for a swift advancing industrial country with a relatively small population, recently joined forces with educational institutions at the National Conference on Engineering, Scientific and Technical Manpower to bring into focus their respective recommendations.

Some 178 international and national unions are active in Canada and 117 of these unions, having more than three-quarters of the total union membership, are affiliated with the Canadian Labour Congress. The Canadian and Catholic Confederation of Labour with some 100,000 members mostly in the Province of Quebec is the largest single group outside the Congress, but negotiations for affiliation are in progress. Four Railway Brotherhoods with a membership of 40,000 in the operating trades are also unaffiliated as well as a miscellaneous group of some 175,000 members of local organizations throughout the country.

The proportion of workers organized in the industrial groups varies widely. The manufacturing industry accounts for over 40 p.c. of the union members, although less than one-third of the workers employed in manufacturing are organized. The transportation industry, with perhaps the longest history of union organization, is the most highly organized with nearly three out of every four workers belonging to trade unions. On the other hand, only one worker in every five employed in the retail industry and in the service industries is a union member.

Geographically, too, there is variation. Workers in manufacturing form an important part of trade union membership in all the regions of the country, though obviously more so in the Central Provinces than in the rest of Canada. One-half of the trade union members in Ontario and Quebec are employed in manufacturing industries, while in other regions the proportion falls to somewhere between 20 p.c. and 30 p.c. In Western Canada the gap is made up by service workers who are highly organized there, while on the Atlantic Coast workers in the primary industries of logging, fishing and mining form the most important segments of the labour movement.

## ***Unemployment Insurance***

A contributory scheme of unemployment insurance and a nation-wide free employment service is in operation in Canada. The Unemployment Insurance Act, which became effective in July 1941, is administered by an Unemployment Insurance Commission, consisting of a Chief Commissioner

and two Commissioners—one appointed after consultation with organized labour and one after consultation with employers. Regional and local officers strategically located across the country handle applications for employment and claims for unemployment insurance benefit.

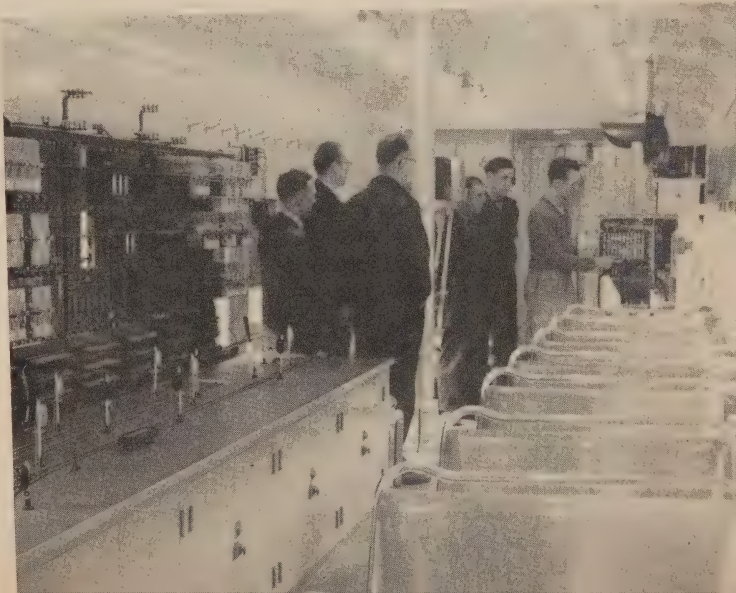
All persons employed under a contract of service are insured unless specifically excepted. Exceptions include such employments as agriculture, fishing, domestic service, school-teaching, and those employed on other than an hourly, daily, piece or mileage basis with annual earnings exceeding \$4,800. Persons employed on an hourly, daily, piece or mileage basis are insured regardless of earnings level. Employers and insured workers contribute equally, the contributions being based on the wages or salaries earned. The Federal Government adds one-fifth of the total employer-employee contributions and pays administration costs.

### Rates of Contribution and Benefit under the Unemployment Insurance Act

(Effective Oct. 2, 1955)

Range of Earnings	Weekly Contributions		Employee's Average Weekly Contribution	Weekly Benefit	
	Em- ployer	Em- ployee		Without Dependant	With Dependant
	cts.	cts.	cts.	\$	\$
While Earning in a Week—					
Less than \$9.00.....	08	08			
\$ 9.00 and under \$15.00..	16	16	Less than 20.....	6.00	8.00
\$15.00 and under \$21.00..	24	24	20 and under 27..	9.00	12.00
\$21.00 and under \$27.00..	30	30	27 and under 33..	11.00	15.00
\$27.00 and under \$33.00..	36	36	33 and under 39..	13.00	18.00
\$33.00 and under \$39.00..	42	42	39 and under 45..	15.00	21.00
\$39.00 and under \$45.00..	48	48	45 and under 50..	17.00	24.00
\$45.00 and under \$51.00..	52	52	50 and under 54..	19.00	26.00
\$51.00 and under \$57.00..	56	56	54 and under 58..	21.00	28.00
\$57.00 and over.....	60	60	58 to 60.....	23.00	30.00

Technological changes in production processes and maintenance practices have been so numerous and so revolutionary in recent years that the larger industrial organizations have found it necessary to provide full-time facilities for the re-training of their employees.





During the first six months of 1956 a total of 892,044 initial and renewal claims were received in local offices, 622,056 initial and renewal claimants were in the category "entitled to benefit" and benefit payments amounted to \$157,274,749. Comparable data for the same period in 1955 were 1,132,653 claims received, 814,070 entitlements to benefit and \$175,144,229 paid in benefit. These payments include \$39,064,122 (1956) and \$29,478,958 (1955) paid to claimants unable to qualify for benefit under the regular terms of the Act but who fulfilled the requirements for the receipt of benefit under the seasonal benefit regulations (operative Jan. 1 to Apr. 15); the number of such persons was 232,016 in 1956 and 228,600 in 1955.

***Persons Insured under the Unemployment Insurance Act, by Industrial Group, Sex and Province, as at June 1, 1955***

Industrial Group	Males	Females	Province	Males	Females
	No.	No.		No.	No.
Agriculture.....	3,560	580	Newfoundland.....	42,680	7,360
Forestry and logging..	74,690	1,650	P.E. Island,.....	6,270	2,280
Fishing, hunting and trapping.....	310	10	Nova Scotia.....	89,840	21,480
Mining, quarrying and oil wells.....	94,720	3,840	New Brunswick.....	68,610	17,940
Manufacturing.....	911,580	272,940	Quebec.....	678,950	241,610
Construction.....	262,980	7,960	Ontario.....	957,110	366,180
Transportation, storage and communication.....	269,150	50,510	Manitoba.....	116,650	45,470
Public utility operation.....	35,840	5,040	Saskatchewan.....	68,260	22,820
Trade.....	356,040	210,260	Alberta.....	149,050	44,660
Finance, insurance and real estate.....	47,130	76,880	British Columbia....	231,700	78,020
Service.....	242,140	170,300			
Unspecified.....	11,120	3,370			
Claimants.....	99,860	44,480			
<b>Totals.....</b>	<b>2,409,120</b>	<b>847,820</b>	<b>Totals.....</b>	<b>2,409,120</b>	<b>847,820</b>

**The National Employment Service.**—The Unemployment Insurance Commission operates the National Employment Service rendering service to all workers and employers in Canada through a national chain of about 200 offices. In 1955 a total of 953,576 vacancies were filled by the Service for Canadian employers. Of these, 683,745 were jobs for regular employees and 231,721 were casual placements; the number of persons transferred to jobs in other areas was 38,110.

## ***Vocational Training***

Various types of training are conducted by the Federal Government in co-operation with the provinces under the Vocational Training Co-ordination Act of 1942. Such projects include the training of unemployed persons to fit them for suitable occupations, special programs for handicapped persons, training of supervisors and foremen in industry, training for members of the Armed Forces, rehabilitation training for disabled civilians and short courses for young people in rural communities and for persons engaged in fishing, forestry, mining and other primary industries. The Federal Government

pays the full costs for the training of service men and pays half of all other training costs under this agreement.

Under an agreement covering the ten years ended Mar. 31, 1955, the Federal Government appropriated \$20,000,000 to assist the provinces in the establishment and operation of vocational and technical schools and classes of lower than university grade. An additional \$10,000,000 was made available to match capital expenditures by the provinces on the construction, extension and equipping of vocational schools, trade schools and technical institutes. Extension of the agreement to Mar. 31, 1957 made available a further \$2,000,000 a year for distribution on the same basis.

The training of apprentices in classes and their supervision on the job is supported by the Federal Government up to 50 p.c. of the provincial expenditures under an apprenticeship agreement covering the fiscal years 1955-64. The Federal appropriation for the year ended Mar. 31, 1957 was \$1,069,500 and during the previous year more than 10,000 apprentices were given training under the plan.

The total budget of the Training Branch of the Department of Labour, which is responsible for the administration of the Vocational Training Act, was \$4,595,895 for the year ended Mar. 31, 1957.

## ***Civilian Rehabilitation***

Canada is moving rapidly in the development of a nation-wide plan of civilian rehabilitation. The Civilian Rehabilitation Branch of the Department of Labour is responsible for the co-ordination of effort necessary to bring together federal departments, provincial governments, the voluntary health and welfare agencies, organized employers and workers and other groups working in the interest of the disabled. This is designed to ensure that adequate medical treatment is provided, that the social problems of the disabled are dealt with and that training is made available for those handicapped persons who may be made capable of taking a place of usefulness in the community. The plan also provides for specialized assistance in securing employment through the National Employment Service of the Unemployment Insurance Commission and for the promotion of employer acceptance of the disabled after they have benefited by whatever form of rehabilitation they have experienced.

Nine provinces have signed Co-ordination of Rehabilitation Services Agreements with the Federal Government and have appointed Provincial Co-ordinators, whose salaries and expenses may be shared equally by the two levels of government. The provincial staffs are working to co-ordinate on a regional and local basis the efforts of all agencies working with the disabled and to stimulate the interest of the medical profession, the universities, management, labour, and vocational guidance and placement services in the potential value of such persons. Closest co-operation is maintained with the Department of National Health and Welfare in order that the greatest possible use may be made of the medical rehabilitation grant and other health grants. The Department of Veterans Affairs, whose achievements in the rehabilitation of Canada's war veterans have been outstanding, is of great assistance and contributes guidance, experience and in some cases facilities, all of which help in the successful operation of the plan.



*The National Ballet conducted a fifty-city tour of Ontario, Quebec and the United States in the 1956-57 season. Some seventy dancers, musicians and stage hands travelled with the tour.*



# Cultural Relationships

THROUGHOUT 1956 vitality and progress characterized the whole field of cultural activity in Canada, and the country's postwar interest in artistic matters continued to grow. In the past decade Canadians have developed a new attitude toward these matters, discarding the former view that cultural activities were needless frills and accepting the belief that a nation's cultural growth must run parallel to its political and economic development. Not only has this change of attitude been noted among individual Canadian citizens but, of great importance, also in the thinking of governments—national, provincial and municipal—corporations, institutions and the press. The most notable event in this progression was the enquiry into the state of Canada's cultural life by the Massey Commission during 1949-51, an undertaking sponsored by the Federal Government. The report of this Royal Commission focussed public attention upon the great need for early encouragement and promotion of many forms of artistic and educational activity, and gained widespread support for its recommendation that a Canada Council be established by the Government of Canada as a permanent, state-supported agency in the field.

In November 1956 the Prime Minister announced the Government's intention of setting up a Canada Council forthwith and indicated the nature of it. The Council would consist of appointees representing the several main regions of Canada and would be endowed financially in a manner to give it maximum independence in its operations. In the first instance the Council would receive a gift of \$50,000,000 as an endowment fund, the earnings from this capital sum to be used to finance continuing activities in the cultural field, and another \$50,000,000 to be used over a period of ten years to assist Canadian universities with their physical building programs. Subsequently the public learned that the Government looked favourably upon the principle of devoting "windfalls" of succession-duty tax collections to the financing of the Canada Council. Plans were fully developed for securing statutory approval of the Canada Council early in the 1957 session of Parliament, with a view to having the new agency in operation before April. This whole development was a matter of great satisfaction throughout Canada, although some editors and political leaders adopted a wait-and-see attitude, wondering how a federally inspired agency operating in the cultural and educational field could avoid collision with the deeply entrenched feelings about supreme autonomy of the provincial governments in the field of education. In any event, the emergence of the long-awaited Canada Council gave an exciting year-end fillip to a year that brought forth many indications of cultural growth.

All forms of the arts thrived in Canada in 1956, and a growing concern with domestic achievement *vis-a-vis* the rest of the world clearly indicated a rapidly developing maturity and sophistication. The exchange of persons and artistic exhibitions and performances between Canada and other countries continued and Canadians were particularly interested in the notices their writers, painters and actors received from critics in other countries. The Canadian business and financial community continued to show its interest in the development of the arts in Canada by the commissioning of many works for public relations programs. All the leading artistic societies enjoyed a

successful year and art galleries, theatres, symphony orchestras, ballet companies and amateur artists in all the provinces experienced a year of lively and rewarding activity.

The provincial governments continued their important support and encouragement of the arts. In Quebec generous help has been given to writers, painters, musicians, sculptors and ceramists for many years and in 1956 this program of encouragement was continued. The Saskatchewan Arts Board and the Alberta Cultural Development Board were important factors in the progress of cultural developments during 1956, while the Ontario Community Planning Division, the Nova Scotia Adult Education Division and similar agencies in other provinces provided help and support in their respective regions. Although support of the arts by municipal governments is not well developed in Canada, there were some notable steps taken in 1956 in Montreal, Toronto, Winnipeg, Edmonton, Calgary and Vancouver.

## Music

From the earliest times of settlement in Canada and throughout the country's history, music has been an important element in the way of life of the people, making itself felt in religion, education, social life and entertainment. The variety of ethnic groups within the Canadian population has given vitality to musical life—the French-Canadian influence tending to perpetuate and develop the spirit and pattern of the music of Old France, the Anglo-Saxon tradition creating an atmosphere favourable to English, Scottish, Irish and Welsh themes and melodies, and the several generations of immigrant peoples bringing the beauty and excellence of centuries-old Slavic, Scandinavian, Teutonic and Gallic music to their new homeland. Canada's physical closeness to the United States and the resultant ease of inter-communication between the two countries has led to an inevitable Canadian interest in American musical phenomena—'modern' music and all its emanations, folk music, jazz and rock-and-roll. With all these influences at work, Canadian music is something of a hodge-podge; and this has been particularly noticeable since the end of World War II.



Love of music has drawn thousands of Canadians into an international movement which was launched some fifteen years ago in Belgium and France. The organization, "Jeunesse Musicale", knows no barriers of race, creed or occupation but was founded for the sole purpose of introducing the young into the world of music.



*The Vancouver Symphony Orchestra and the Bach Choir of Vancouver rehearse for a performance of Beethoven's Choral Symphony.*

During 1956 there was a continuing development of Canadian musical interests in many ways. Perhaps of first importance was the appearance of the first issue of *The Canadian Music Journal* published at Sackville, N.B., under the auspices of the Canadian Music Council. Its featured articles by notable musical persons and its general excellence gave the impression that Canada was to have a much-needed and long-awaited journal to reflect the interests of music lovers from coast to coast. The second music festival held in conjunction with the famous Shakespearean Festival at Stratford, Ont., proved to be an outstanding success artistically and financially, and many visitors from the United States as well as from all parts of Canada were pleased and impressed. A noteworthy event in Montreal was the celebration of the twenty-first anniversary of the *Young Peoples Symphony/Matinée Symphonique pour la Jeunesse*, sponsored by the Montreal Symphony Orchestra Society and directed throughout all its years by the distinguished Canadian musician Dr. Wilfrid Pelletier. Also of considerable importance was the continued growth of the *Jeunesse Musicale* movement throughout the Province of Quebec and into many Ontario centres. Two of Canada's leading musical organizations, the Canadian Music Council and the Canadian League of Composers, enlarged their usefulness and influence during 1956 and welcomed as a new colleague organization the Canadian Music Associates, a body devoted to the "composition, publication and performance of contemporary Canadian music". Of great significance, too, was the arrival of many highly trained musical people among the thousands of Hungarian people who came to make their homes in Canada. Foreshadowing the early development of a





Students from the New Brunswick School of Arts and Crafts at Point Wolfe. Alma sketching a

national opera company was the decision made late in 1956 to separate the Toronto Opera Festival Association from its former patron the Royal Conservatory of Music of Toronto. Local opera groups enjoyed growing box-office success in Halifax, Montreal, Ottawa, Winnipeg, Edmonton and Vancouver. Symphonic orchestras in a dozen Canadian cities made interesting headway during the year and the twenty-odd music festivals conducted across Canada from Newfoundland to Vancouver Island attracted unprecedented audiences. The Canadian Broadcasting Corporation continued to be the most important patron of Canadian music throughout the year, providing a continuous fare of fine and popular music and many spectacular symphonic and operatic programs as well as encouragement for Canadian composers and opportunities for young Canadian performers.

Outside of Canada an event of major importance was a full-length public concert by the famous French National Radio and TV Orchestra devoted entirely to the work of Canadian composers. Broadcast from Paris in January 1956 from the *Théâtre des Champs-Élysées*, the program elicited favourable comments from music critics throughout Europe and was an event of great encouragement to creative music in Canada.

## Visual Arts

Throughout 1956 there was a notable development of Canadian interest in painting, etching and engraving, graphic arts and sculpture—an interest which was evident in all the main cities, in Parliament, in commercial and financial circles and in educational institutions. The interest was an outcome of continued attention directed toward these art forms since the end of World War II, by UNESCO efforts, by increased circulation of art publications, by radio and television programs, by travellers and by stepped-up art education in schools and colleges throughout Canada.

Canadians welcomed the first steps taken toward better housing for their National Gallery—a complicated operation which involves the building of new temporary quarters in downtown Ottawa to provide adequate space for the nation's artistic treasures for the next ten years or so, pending construction of the long-projected gallery building which will occupy space now in use for other purposes. The National Gallery has been crowded into a portion of the National Museum building for many years and the current willingness of Parliament to improve this situation is a reflection of growing national concern for artistic matters. Parliament's approval in 1956 of greatly increased expenditures for the purchase of costly paintings for the national collection was also significant. The Gallery's world-renowned collection of drawings and prints received an important addition in 1956 when a group of Toronto businessmen presented *A Nude Woman with a Staff*, a drawing made in 1503 by the great German master Albrecht Durer. The Director of the National Gallery travelled from coast to coast during the year, speaking to large audiences in almost every Canadian city.

Canadian painters achieved more than ordinary success abroad during the year, with numerous one-man exhibitions attracting favourable attention in Paris, London, Rome, Tel Aviv, Mexico, New York and other art centres. Works by five young Canadians—William Ronald, Paul Borduas, Jean Riopelle, Takao Tanabe and Gordon Smith—were selected as entries in the first Guggenheim \$10,000 International Award competition, held in Paris. A New York exhibition of work by the Painters Eleven group of Toronto non-objectivists received lively and favourable notices from the Manhattan critics. One of the most important exhibitions in Canada, organized by the Art Gallery of London, Ont., and circulated from coast to coast, brought together a series of *before* and *after* paintings by seventeen leading Canadian painters who had spent some time abroad in recent years. Throughout Canada there was widespread satisfaction when it was announced that an adequate art gallery would be included in the Canada building at the Brussels

Onlookers are inevitable when an etcher works on a busy thoroughfare, reversing his subject by means of a mirror.





International Exhibition to be held in 1958, this being the first attempt at presenting the country's cultural development at a world fair.

During the year the patronage of art by commercial and financial corporations showed a notable increase; art schools were crowded to capacity in every Canadian city; amateur painters were active in ever-increasing thousands; exhibitions were more numerous and well attended; commercial galleries enjoyed brisk business and professional painters were making a better living than ever before. National, provincial and municipal governments took an unprecedented interest in art developments and showed a new willingness to commit the taxpayers' funds to cultural enterprises.

## Literature

Book writing and book publishing continued in the Canadian wave of postwar prosperity throughout 1956, contrary to the predictions of some observers who believed the competition offered by television and radio would create serious reverses for the printed word. There was good demand for non-fiction, fiction, poetry, drama and biography and Canadian creative writers experienced the best market in many years for their work. Of considerable importance was the discontinuance of *Northern Review*, Canada's main English-language magazine of literary criticism and encouragement during the past decade; the revival of *Nouvelle Revue Canadienne/National Review of Canada*, bilingual magazine of literature and opinion; and the launching of *Tamarack*, a new quarterly devoted to Canadian creative writing and literary criticism. Four medals for outstanding contributions to Canadian literature were awarded by the Royal Society of Canada in June 1956: to Dr. G. Lyman Duff (scientific writing), Victor Morin (French-Canadian literature), Thomas H. Raddall (English-Canadian literature) and



In this day of simplicity in architectural, industrial and aesthetic design, the sculptor finds relatively limited scope for professional service. This golf trophy by Pauline Redsell, standing about thirty inches high, was eventually cast in solid bronze and valued at \$1,000.



More and more of the drama presentations of radio, television and theatre in Canada are original works by Canadian playwrights or are Canadian adaptations. During the past few years a number of very gifted dramatists have come to the fore. This scene from Patricia Joudry's "Teach Me How to Cry" was first produced for radio and then adapted for television. It won the top award at the 1956 Dominion Drama Festival and has since been often performed on the amateur stage.



Rev. Olivier Maurault (history). Several new schemes of awards for Canadian writers were announced during the year, the most important being the Canada Foundation's Fellowships in Creative Writing for the encouragement of young novelists, poets, dramatists, essayists and critics. Eric Nicol of Vancouver became the first twice-winner of the Stephen Leacock Medal for humorous writing with his book *Shall we Join the Ladies?*. The Canadian Library Association's award for the best English-language book for children was won by Miss Louise Riley of Calgary, Alta. The selection of winners of the Governor General's Awards for books written by Canadians was received with general approval throughout the country. The winners were: *The Sixth of June* (fiction) by Lionel Shapiro; *Friday's Child* (poetry) by Wilfred Watson; *Man's Emerging Mind* (creative non-fiction) by N. J. Berrill; *John A. Macdonald—the Old Chieftain* (academic non-fiction) by Donald G. Creighton; and *The Map-Maker* (juvenile) by Kerry Wood.

## Theatre

Throughout 1956 the theatre continued to be one of Canada's most successful cultural activities. The Stratford Shakespearean Festival was again front-page news with its successful fourth season, its bilingual development, its decision to build a new theatre and its excursions into films and playing abroad. The 1956 Festival of this world-famed Canadian enterprise was the final one in the great tent which has been a special attraction to many thousands of people. The canvas structure is being replaced by a permanent theatre costing in the neighbourhood of \$2,000,000, and the 1957 Festival will open in the new building. The 1956 Festival featured presentations of *The Merry Wives of Windsor* and *Henry V*, and in the latter play Quebec actors handled the French parts with notable distinction and audience approval. An added feature of the Festival was the presentation of three short Molière plays in French by the Quebec players. Gross revenues from the Festival totalled \$475,486, an increase of \$11,000 over 1955, but there was a net loss of about \$25,000 on the season's operations. The foundation

which sponsors and promotes the Stratford Shakespearean Festival launched a public appeal for \$1,500,000 to finance the new building and more than half the amount had been raised by the end of the year. A film version of *Oedipus Rex* was produced under the sponsorship of the Stratford Foundation in 1956 and a company of the Stratford players appeared successfully during the late summer at the Edinburgh Festival, although a Broadway production of *Tamburlaine the Great*, early in 1956, by the Stratford company was not notably successful.

The Dominion Drama Festival, Canada's long-established and highly successful amateur theatre development, gained more than ordinary attention in 1956 when a controversy developed over the subject of financial support provided by a leading distillery company. The Festival was held at Sherbrooke, Que., and the top honours were gained by a three-act play written by a Canadian—the first time this had occurred. The winning play *Teach Me How to Cry*, by Patricia Joudry, was presented by the University of Toronto Alumni Dramatic Club. The nation-wide Little Theatre movement, that vigorous network of amateur theatrical groups which provides the background for the Dominion Drama Festival, enjoyed an exceptionally successful year in 1956, and growing public interest in professional theatre was shown in a number of Canadian cities. The Canadian Broadcasting Corporation's well-planned policy of providing the publicly controlled networks with good and frequent dramatic works was continued and enlarged throughout 1956, and radio and television work provided a good livelihood for many Canadian actors. Summer stock theatres operated in Canada in greater number than ever before although the 1956 weather was not particularly favourable. The teaching of dramatic art in universities and drama schools throughout Canada as well as in the amateur drama movement has resulted in the development of an impressively increasing number of young Canadian actors who

French Canadian actors have a dynamism, a fluidity and a vitality that is markedly their own. The two Canadian schools of acting—English and French—were brought together on a grand scale at the 1956 Stratford Shakespearean Festival with complete success.





The highlight of the amateur theatre year is the Dominion Drama Festival. The Governor General congratulates the Ottawa Little Theatre Workshop on winning the 1957 Eastern Ontario regional trophy with its presentation of "Pygmalion". ▶



▲ A Canadian production of the English musical "Salad Days" was one of the successes of the 1956-57 season in Toronto and Montreal.

▶ Scene from the 1956 Shakespearean Festival production "Henry V". The Festival is entering its fifth year—it has established an impressive record of artistic success and has come to be regarded as a national institution.



are making a name for themselves and for Canada in drama media in many foreign countries. The fact that teaching and acting are in both English and French in Canada has been an important factor in the projection of Canadian dramatic talent abroad.

## Ballet

Before World War II, ballet was almost an unknown factor in the cultural life of Canada and only two companies—the Winnipeg Ballet and the Volkoff Ballet of Toronto—achieved any prominence. During the past decade, however, a notable change has occurred and today ballet is enjoyed in every large Canadian city and in many smaller centres, and two professional companies have been developed to a stage of excellence. The main inspiration for this growth of Canadian public interest in ballet has been the example of foreign ballet companies brought before Canadian audiences by motion pictures, television and personal appearances. First the Sadlers Wells



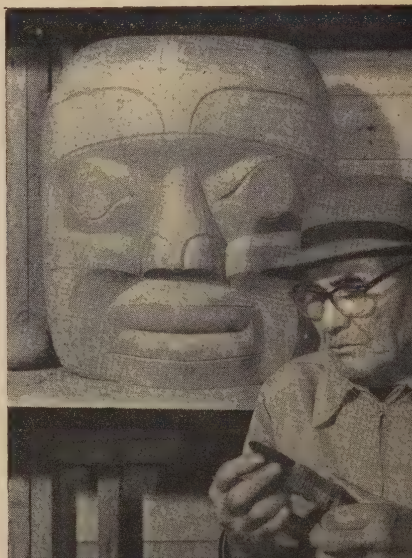
Company from London and Le Ballet de Paris, then the New York Theatre Ballet, and latterly, performances by unexcelled dancers from the Union of Soviet Socialist Republics, aroused great enthusiasm throughout Canada, and the basis for an enduring ballet movement was set. The Royal Winnipeg Ballet and Toronto's National Ballet are fully professional groups, performing in their home cities and on tour, and operating schools for the training of their own corps-de-ballet. Both groups pioneered in 1956 with new ballets, some with local-colour Canadian themes and some with music specially written by young Canadian composers. Both the Winnipeg and Toronto companies presented their programs to audiences in many Canadian cities in 1956 and made extensive and successful tours in the United States. In Canada, ballet receives no financial support from the state, but is financed entirely by private enterprise and the generosity of that portion of the public which admires ballet; a situation which leads to both disappointments and self-reliant vitality for ballet companies.

## Handicrafts

The promotion and encouragement of handicrafts is highly developed throughout Canada, and organization is in the form of voluntary societies and government-sponsored groups at the national, provincial and local levels. Many skills and crafts have been practised in Canada since the earliest times when the actual needs of pioneer life demanded home manufacture of furniture, rugs, cloth, dishes, utensils, clothing and ornaments. To this knowledge and skill of indigenous crafting has been added the handicraft talent of immigrant peoples from every country in Europe, with a resultant variety probably not equalled elsewhere.

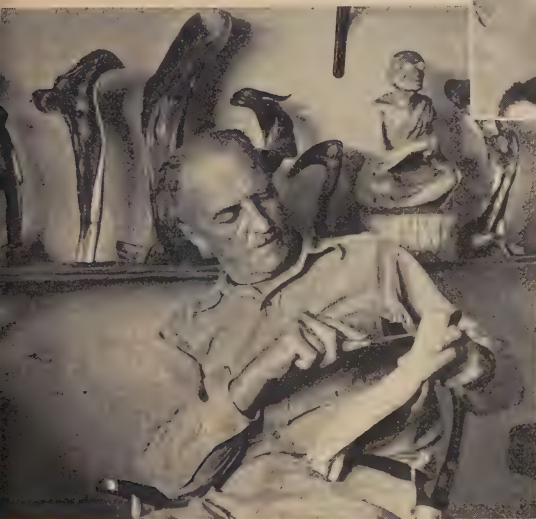
Provincial governments and the extension departments of universities maintain staffs of highly trained and skilled handicraft workers who organize groups, train leaders and sponsor exhibitions. Many civic governments employ skilled handicraftsmen to organize and teach at community centres, and civic exhibitions of crafts are frequent. In most cities, handicrafts are taught in the local schools. The Federal Government promotes handicraft activities among its wards—the Indian and Eskimo peoples.

*The totem arts belong to the past and few remain today with knowledge of this unique craft of the Kwakiutl Indians, who watched the coming of the first white men to Vancouver Island. Mungo Martin, present chief of the tribe, is one of the last of the carvers.*



A true handicraft artist finds his medium in the common gifts of nature that fall readily to his hand. With native talent and skill often handed down from generation to generation he transforms them into an expression of himself and his surroundings.

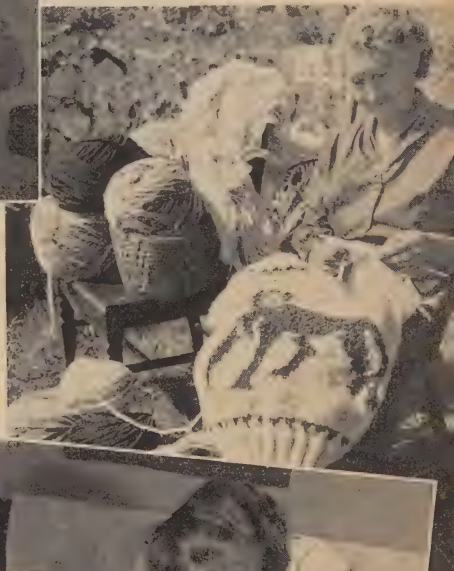
An Eskimo with crude tools and the stone at his feet amazes the sophisticated artistic world with his inherent ability to portray the life of his people.



Juniper roots from Alberta suggest their own eventual form.

Undyed wool from sheep raised on the Cowichan Indian reserve in British Columbia is transformed into wind and water repellent pullovers.

Rugs, hooked with home dyed wool or materials, portray the Quebec scene, and in skilled hands the clays of Nova Scotia become articles of simple beauty.



The Canadian Handicraft Guild, with a number of provincial subsidiary branches, is a strong and vigorous citizens' organization devoted to the promotion of all forms of handicraft. A number of individual crafts are organized within the general handicraft network and promote the welfare of their particular groups. The Canadian Guild of Potters and the Canadian Leathercraft Guild, representing a fine arts aspect of their crafts, are members of the Canadian Arts Council.

## Cultural Organizations

The most important organizations in Canada engaged in the encouragement and promotion of cultural activities are financed and directed by private enterprise. Serving as centres of interest and inspiration for musicians, painters, dancers, dramatists and others working in the arts, these organizations have grown notably in the past ten years and now make their influence felt at the national, provincial and municipal levels. The Royal Canadian Academy of Arts is the oldest national prestige organization, an election to its full membership is regarded as the highest honour open to Canadian artists. Important bodies which have developed since World War II include the Canada Foundation and the Canadian Arts Council. The latter, now in its thirteenth year of existence, is a federation of national organizations which dominate much of the professional cultural life of Canada, including: the Royal Architectural Institute of Canada, the Canadian Authors Association, La Société des Écrivains Canadiens, the Federation of Canadian Artists, the Canadian Music Council, the Canadian Handicraft Guild, Canadian Guild of Potters, Canadian Group of Painters, Canadian Society of Painter-Etchers and Engravers, Sculptors Society of Canada, Canadian Society of Graphic Arts, Canadian Society of Landscape Architects and Townplanners, the Arts and Letters Club, the Canadian Ballet Association and the Canadian Society of Creative Leathercraft.

Summer schools of the arts in many parts of Canada were well patronized in the 1956 season. Some of the more noted are: the Banff School of Fine Arts at Banff, Alta.; the Doon School near Galt, Ont.; Queen's University, Kingston, Ont.; L'École des Beaux-Arts, Quebec, Que.; and the Regina College Summer School at Emma Lake, Sask. The Summer Institute of Mount Allison University at Sackville, N.B., used *The Arts of Canada* as its theme in 1956, and the arts were a prominent part of the 1956 program at Camp Lacquemac in Quebec, sponsored jointly by McGill and Laval Universities. At the small town of Tatamagouche the annual Nova Scotia Summer Festival of the Arts is rapidly becoming one of Canada's leading cultural activities.

## Museums and Art Galleries

Among the chief functions of museums and art galleries are the preservation of concrete records of the past and the presentation of these records in permanent or special exhibit groupings according to subject themes for the interest and enlightenment of the general public. Although there are in Canada no museums and art galleries comparable with the wealthy and long-established institutions to be found in other leading nations, those in the national capital and in the larger cities offer encouragement to the smaller





Canada's newest historical site overlooking the beautiful Bras d'Or Lakes in Nova Scotia, recalls the genius of Alexander Graham Bell—a remarkable monument to a remarkable man. It is designed on the tetrahedron, the structure so extensively used by Dr. Bell in his kite-flying experiments, and contains over a thousand exhibits of that renowned inventor's ideas and achievements.



provincial and local ones through generous programs of travelling exhibitions, lecture tours and reproductions, and in recent years a newly awakened consciousness of the significance of such institutions to the cultural life of the people has become evident at the federal, provincial and municipal levels.

The National Museum at Ottawa, although essentially a museum of natural history carrying on scientific research in zoology, botany and anthropology, has collected an extensive exhibit of Indian and Eskimo lore and many phonographic recordings of French-Canadian, English-Canadian and Indian



▲ The migratory habits of wild geese are explained to children at one of Canada's seventy-six bird sanctuaries. Most migratory birds are given absolute protection in all parts of Canada and, because of severe climatic conditions, most Canadian birds are migratory.



◀ Banding a Canada goose.

songs. Other federally operated museums include the Canadian War Museum, the nucleus of a historical museum housed in the Public Archives, a collection of aviation exhibits in the National Research Council, a farm implement exhibit at the Experimental Farm at Ottawa, and several historical museums situated in National Parks. All are modest in scope.

The Royal Ontario Museum at Toronto is the largest and best-known of the provincial museums. It specializes in the field of archaeology and carries on extensive work in research and publication. The New Brunswick Museum, though smaller, is noted for its exhibits designed for school use. Laval University, McGill University, the University of Western Ontario and the University of British Columbia all have sizable collections, and certain private



exhibits, such as that of the Hudson's Bay Company at Winnipeg and that of the Bell Telephone Company at Montreal, attract many visitors.

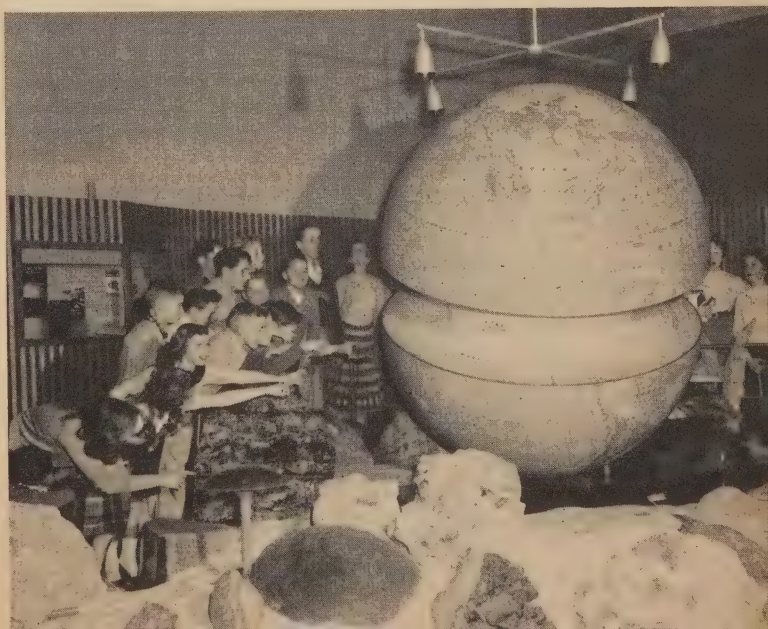
The National Gallery at Ottawa has assembled a permanent collection of paintings and sculpture, prints and drawings representative of past and present styles from various countries. The Canadian section is most inclusive and is made known to the whole country through catalogues, photographs, colour reproductions, films, radio broadcasts and, to a limited extent, by loans. The extension work of the Gallery includes organization of exhibitions from collections abroad and the fostering of Canadian industrial art. There are also important collections in most of the larger cities such as Toronto, Montreal and Vancouver.

## Libraries

Public library service in Canada is conducted through large urban libraries and their branches in metropolitan areas, sometimes augmented by bookmobile service to outlying districts; by smaller libraries in smaller urban centres; by regional service established on a county or wider basis; and by mail service to remote areas. This service in each province, with the exception of Quebec, is under the jurisdiction of some branch of the provincial government as far as legislation is concerned, but the operation of libraries is under the control of municipal or private bodies. Financial assistance is provided by the provincial governments as well as administrative assistance.

Services other than book lending are also provided by public libraries. Many of them have stocks of films, records and paintings which may be borrowed by individuals or used for the instruction and entertainment of local audiences. Story hours and puppet shows for children are often conducted and special programs for adults such as lectures, fine arts exhibitions and concerts are arranged. Young Canada Book Week is sponsored each year by the libraries in co-operation with the Canadian Library Association to promote interest in reading among Canadian children and to acquaint them with the services provided by libraries.

An experiment in education and recreation has been undertaken by the Royal Ontario Museum in its new galleries of physical geology. A series of graphic exhibits and a spun aluminum revolving world show the fascinating story of the earth's birth, formation and evolution.







The problem of keeping informed in the business and industrial world is finding some solution in the establishment of specialized company libraries to fill their own staff needs. Such libraries have more than doubled in number during the past ten years.

The following table gives the latest available information on the book stocks and staffs of the various types of libraries in Canada surveyed by the Dominion Bureau of Statistics.

*Summary Statistics of Libraries, by Type and Province, 1953-54<sup>1</sup>*

Type and Province	Libraries <sup>2</sup>	Volumes <sup>3</sup>	Full-time Staff	Part-time Staff	Trained Staff <sup>4</sup>
	No.	No.	No.	No.	No.
Public.....	765	8,405,375	1,595	1,403	620
University and college.....	268	7,630,261	545	615	290
Federal government.....	102	2,067,430	345	34	107
Provincial government.....	99	1,389,516	162	59	53
Business, professional and technical society.....	131	774,629	253	74	61
Travelling and open-shelf.....	9	411,200 <sup>5</sup>	62 <sup>5</sup>	8	21 <sup>5</sup>
<b>Totals (less duplication).</b>	<b>1,374</b>	<b>20,651,411</b>	<b>2,958</b>	<b>2,193</b>	<b>1,151</b>
Newfoundland.....	10	225,264	28	7	7
Prince Edward Island.....	6	115,522	13	30	6
Nova Scotia.....	49	819,813	91	95	52
New Brunswick.....	30	476,449	46	29	16
Quebec.....	244	5,326,246	495	393	262
Ontario.....	703	9,678,850	1,507	1,036	550
Manitoba.....	31	740,912	124	87	31
Saskatchewan.....	93	847,406	113	122	46
Alberta.....	123	837,329	158	204	42
British Columbia.....	85	1,583,620	383	190	139

<sup>1</sup> Figures for federal and provincial government libraries are for the year ended Mar. 31, 1954; others are for the calendar year 1953. <sup>2</sup> Main libraries only. <sup>3</sup> In main and branch libraries. <sup>4</sup> Degree status training in library science. <sup>5</sup> Includes some duplication in Newfoundland figures.

**The National Library.**—A National Library was formally established on Jan. 1, 1953, by the National Library Act. Plans for the building have been completed, but construction has not yet begun and the acquisition of book-stock is still on a limited scale. In the meantime, work has continued on three major projects: the completion of a National Union Catalogue of the holdings of major Canadian libraries; the preparation of various catalogues, bibliographies and check lists relating to Canadian publications; and the microfilming of rare books and periodicals of Canadian interest.

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By the end of 1956 the National Union Catalogue was estimated to represent 7,000,000 volumes in 122 libraries, thus forming a single reference system and facilitating inter-library loans. The national bibliography is kept up to date by *Canadiana*, a monthly classified record of new publications relating to Canada. An abridged version entitled *Canadiana Selections*, is published mainly for distribution abroad.

**The Public Archives.**—The purpose of the Public Archives, which was created in 1872, is to assemble and make available to the public a comprehensive collection of source material relating to the history of Canada. Its four main divisions deal with manuscripts, maps, pictures and books. A historical museum is open to the public during office hours and on Saturdays and Sundays and microfilm viewers are at the disposal of accredited research workers at all times. Branch offices are maintained at London, England, and at Paris, France.

## Media of Mass Communication

**The Press.**—About 98 daily newspapers, counting morning and evening editions separately, are published in Canada, with an aggregate reported circulation of more than 3,770,000—about 83 p.c. in English and the remainder in French, except for a few in Yiddish or Chinese. Ten of the papers enjoying circulations in excess of 100,000 account for more than half of the circulation. Well over 90 p.c. of all newspaper circulation is in urban centres.

Weekly or monthly publications include a considerable variety of foreign-language publications including Ukrainian, German, Yiddish, Polish, etc. Weekly newspapers serve more people in rural communities than do the dailies.

The Canadian Press, a co-operative organization owned and operated by Canada's daily newspapers, provides its 98 members with world and Canadian news and news photographs mostly by means of teletype and wirephoto transmission. It also serves weekly newspapers and radio and television stations. It is, in effect, a partnership through which each member newspaper provides to its fellow-members the news of its particular area and through which the general news of the world is brought to Canada. Cost of editing and transmission is divided among members according to the populations of the cities



The press clamours for news from the Prime Minister after an exciting Parliamentary discussion.

in which they publish. CP gets world news from Reuters, the British agency, and from the Associated Press, the United States co-operative, and these agencies have reciprocal arrangements with CP for their coverage of Canada.

The British United Press, privately owned and affiliated with the United Press, with 12 bureaux, also provides a service of Canadian and world news, news photographs and related features for Canadian newspapers, radio and television stations. There are as well special news services operated by affiliated newspapers and individual newspapers. Several foreign news agencies have representatives in Canada to supply and interpret news of Canadian origin, as have also the leading United Kingdom and United States newspapers. Most of the latter are located at Ottawa.

*Press Statistics.*—Daily newspapers alone contribute 60 p.c. of the value of periodical publications, totalling \$265,000,000, produced in Canada each year, of which amount 73 p.c. is realized from advertising and 27 p.c. from sales. Printed and bound books are produced to the value of \$35,000,000, with fiction, non-fiction, scientific and text books making up somewhat less than half that amount. Recorded imports of books and other printed matter greatly exceed recorded exports, the former amounting to over \$73,000,000 and the latter to about \$3,600,000 in 1955. Hence, it appears that the per capita annual expenditure of Canadians on books, pamphlets and periodicals is in the neighbourhood of \$20.

The combined circulation of Canadian magazines is over 11,300,000. In order of popularity, magazines classified as home, social and welfare come first, agriculture second, trade and industry third, religion fourth and education fifth.

Purchases of books and other printed matter from the United States are significant, recorded imports having increased from \$28,585,000 in 1948 to \$66,883,000 in 1955. Imports from the United Kingdom have shown a small annual increase in postwar years to about \$3,072,000 in 1955. In the same year, imports from France were valued at \$2,000,000.



**Radio and Television.**—Radio broadcasting and television in Canada are dealt with at pp. 222-228. The number of radio receiving sets made available in Canada through domestic production and imports has averaged about 650,000 a year since the end of World War II. From a high of 836,419 in 1947, Canadian domestic sales by distributors declined to 620,860 in 1953 and to 487,237 in 1954, then increased to 609,993 in 1955 and 709,416 in 1956.

The establishment of television service by the Canadian Broadcasting Corporation in 1952 precipitated a tremendous increase in the demand for television receiving sets. Producers domestic sales mounted from 29,623 sets in 1950, to 39,185 in 1951, 137,236 in 1952, 366,498 in 1953, 623,856 in 1954 and 764,957 in 1955 but declined to 598,149 in 1956.

**Motion Pictures.**—In 1955 there were 1,950 motion-picture theatres in Canada with a seating capacity of 984,389, 242 drive-in theatres, 616 community halls offering screenings, and 590 halls serviced by itinerant operators. On the average, each Canadian attended 13 motion-picture programs and paid \$6.74 in admissions, the lowest in six years. There were 2,462 new titles released during 1955 for theatrical booking. Of this total, 1,124 were new feature films, over half (649) originating in the United States, 340 in France, 55 in Great Britain, 54 in Italy and 25 in other countries. In 1955 Canadian motion-picture studios made over \$3,500,000 worth of film for industry and government and proved themselves capable of producing the highest quality of documentary and educational films. Canadian film production in 1955 was divided between private industry (46 firms) and seven federal and provincial government agencies, with emphasis on non-theatricals, newsreel stories, television showings, commercials, and theatre trailers and newsclips.

**C Music Transcription Service** preparing a recording. Transcribed programs featuring Canadian composers and artists are made available to broadcasting systems around the world.





The National Film Board, whose specific job is the documentation of Canadian life, has a new plant on the outskirts of Montreal. It contains the finest modern laboratory and other equipment available for the production, processing and distribution of theatrical, non-theatrical and television films.

*National Film Board.*—The importance of the non-theatrical film, filmstrip and still photograph as a medium of information was recognized by the Federal Government in 1939 when the National Film Board was established. Since that time the Board has become increasingly well known in Canada and abroad as a national documentary film producing and distributing organization whose function it is to interpret Canada to Canadians and to the people of other nations in an interesting and factual manner. That it has done so with distinction is evidenced by the fact that more than 200 awards of Canadian and international significance have been made to NFB productions.

During the year ended Mar. 31, 1956, NFB completed 205 documentary films on Canadian life in all its aspects as well as 40 news stories, 12 newsclips and 12 TV stories. Contract films and newsclips numbered 39. Of the total of 308 productions, 169 were original films and the remainder were revisions and language versions of originals. In addition, the Board continued its production of four series for theatrical use in Canada.

NFB product is shown throughout the world in commercial theatres, on television where this medium is in operation and to non-theatrical audiences both at home and abroad. Non-theatrically, showings in Canada reached an audience of over 14,500,000 people in 1955-56 and an undetermined number saw NFB films that had been purchased by film libraries, schools, industry and other organizations. Abroad, Canadian films are distributed through many channels—through posts of the Departments of External Affairs and Trade and Commerce, through deposits with state and local distribution agencies, and through exchange agreements with various foreign governments. Altogether the non-theatrical audience in the latest fiscal year was estimated at 32,000,000. Films produced for theatrical use received 7,294 Canadian bookings and 21,519 bookings in other countries.

Hundreds of films from the NFB's non-theatrical library are made accessible to television stations in both Canadian and foreign markets. During 1955-56 there were 6,631 telecasts of NFB films, 3,211 in Canada and most

of the others in the United States and the United Kingdom. In that year, 74 films were produced specially for TV use.

The sale of prints has become an important part of the distributive operations of the Board, in 1955-56 accounting for 8,000 of the 17,500 prints placed in circulation for the first time. Films and filmstrips are sold direct by NFB offices in Canada, New York and London and through selected commercial distributors in many countries.

The National Film Board is a Crown corporation whose executive consists of a Commissioner, who is Chairman, and eight other members, three of whom are appointed from the public service. Members of the Board, other than the Commissioner whose tenure of office is five years, are appointed for three-year periods. The office of the Commissioner and certain headquarters personnel are located in Ottawa but the Board functions from its recently completed plant in St. Laurent, Que.

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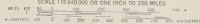






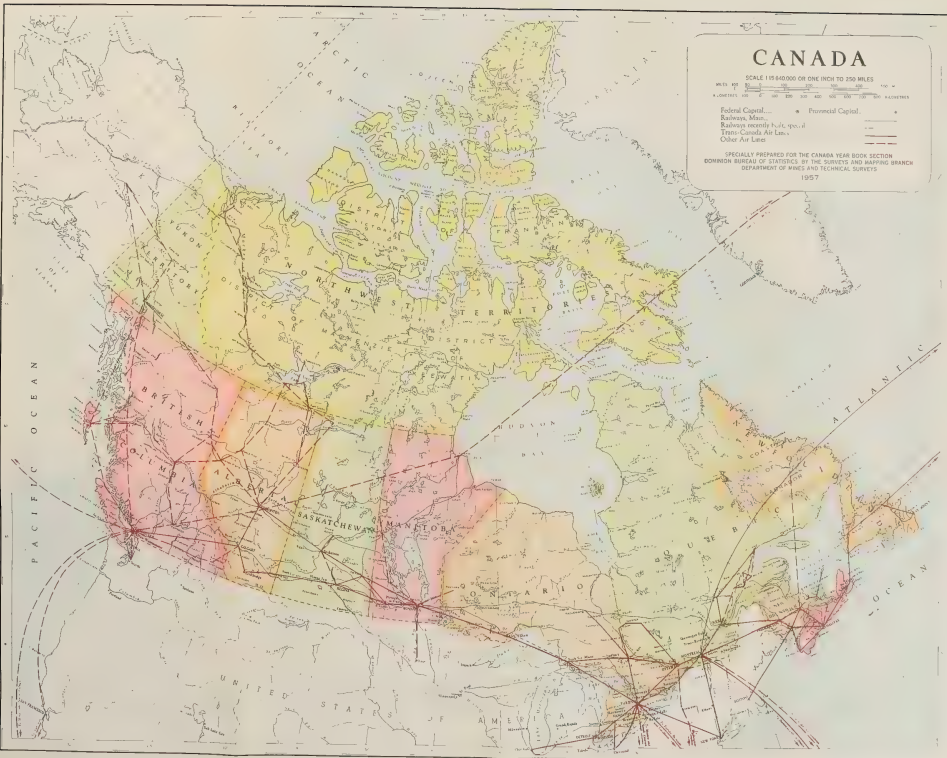
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